



Appendix K

Noise and Vibration Assessment

Noise and Vibration Assessment

Morningside Project

City of Inglewood, California

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Expect More. Experience Better.

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APPENDICES

Appendix A: Noise Data

LIST OF ABBREVIATED TERMS

APN	Assessor's Parcel Number
ADT	Average daily traffic
dBA	A-weighted sound level
CEQA	California Environmental Quality Act
CNEL	Community equivalent noise level
L_{dn}	Day-night noise level
dB	Decibel
L_{eq}	Equivalent noise level
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	Heating ventilation and air conditioning
Hz	Hertz
in/sec	Inches per second
L_{max}	Maximum noise level
μPa	Micropascals
L_{min}	Minimum noise level
PPV	Peak particle velocity
RMS	Root mean square
VdB	Vibration velocity level

1 INTRODUCTION

This Noise and Vibration Assessment assesses the potential noise and vibration impacts associated with construction and operations of the proposed Morningside Project (Project), located in the City of Inglewood, California (City).

1.1 Project Location

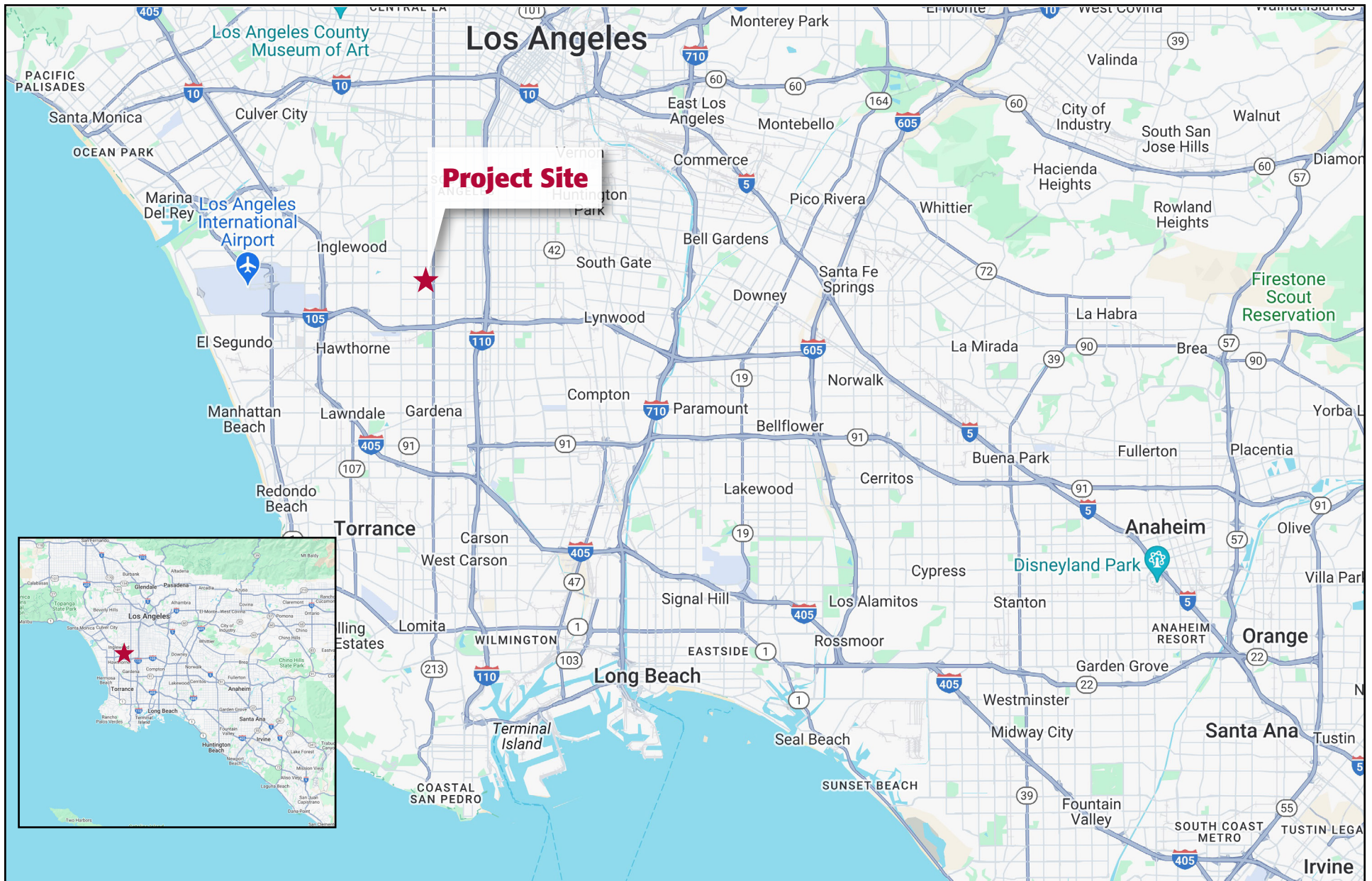
The Project Site is located south of the community of Morningside Park, in the southeastern portion of the City within Los Angeles County, California. As shown in [Figure 1: Regional Map](#) and [Figure 2: Project Site](#), the Project Site is located south of West 104th Street between Yukon Avenue and South 10th Avenue. The Project Site is served by a network of regional transportation facilities connecting to the larger metropolitan area. Primary regional access is provided by Interstate 105 (I-105), which runs east-west and is located approximately 0.9-mile south of the Project Site, by Interstate 405 (I-405), which runs north-south and is located approximately 1.8 miles west of the Project Site, and by Interstate 110 (I-110), which runs north-south and is located approximately 2.7 miles east of the Project Site. Major arterials serving the vicinity of the Project Site include West Century Boulevard, Crenshaw Boulevard, and Imperial Highway.

The Project Site is located within a suburban residential neighborhood comprised of single-family (one- and two-story) homes to the west and south, multi-family uses, and commercial uses including a Costco to the north, and educational facilities including Morningside High School to the west and Woodworth-Monroe TK-8 Academy to the southeast. The Inglewood Unified School District (IUSD) - Child Development Center also located to the southeast is planned to be rebuilt to the east of the Project Site at the southwest corner of 104th Street and 10th Avenue. The Hollywood Park Specific Plan area, including SoFi Stadium is located approximately 0.25-mile to the north of the Project Site. Additionally, the Inglewood Basketball and Entertainment Center (IBEC) Project would be located 0.25-mile to the northeast of the Project Site, once construction is complete in 2024.

The Project Site is also located approximately 2.5 miles east of the Los Angeles International Airport (LAX) and approximately 1.0 mile north of the Hawthorne Municipal Airport. Nearby transit access lines include Metro Line 117, which travels along Century Boulevard connecting Inglewood to LAX, Westchester, Vermont, Watts and Norwalk, and Metro Line 210, which travels along Crenshaw Boulevard, connecting Inglewood to the Redondo Beach Transit Center, Downtown LA, Mid-City and Hollywood. Other bus lines serving the Project Site near Yukon Boulevard include the Los Angeles County Lennox Shuttle, providing service from Lenox, Inglewood, Centinela Hospital, County offices, parks, public schools, libraries, and shopping centers. The Project Site is located within 0.25-mile of 2 transit stops both with 15-minute intervals during peak travel periods.

1.2 Project Description

The Project proposes construction of 571 townhome units, of which 10 percent would be affordable for Very Low Income households. To serve residents and guests, the Project would provide approximately 375,622 sf of open space, including 20,799 sf of private open space and 354,823 sf of common open space. The common open space would include landscaped common areas, landscaped areas between buildings, a dog park, two pocket parks, and two club houses featuring workout rooms, restrooms, flex space, recreational swimming pools, open space, office areas, and lounging areas. The dog and pocket parks would include seating areas, with the pocket parks also featuring playground equipment. Private open space would include front porches and patios/ balconies. [Figure 3: Site Plan](#) displays the Project components.



SOURCE: Google Maps, 2024



FIGURE 1: Regional Map

INGLEWOOD MORNINGSIDE PROJECT



SOURCE: Nearmap, 2024



FIGURE 2: Project Site
INGLEWOOD MORNINGSIDE PROJECT



SOURCE: Danielian Associates, 2024



FIGURE 3: Site Plan

INGLEWOOD MORNINGSIDE PROJECT



2 ACOUSTIC FUNDAMENTALS

2.1 Sound and Environmental Noise

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g., air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).¹

Noise is defined as loud, unexpected, or annoying sound.² The fundamental model consists of a noise source, a receptor, and the propagation path between the two.³ The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound.⁴ A typical noise environment consists of ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this ambient noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micro-pascals (μPa) as a point of reference, defined as 0 dB.⁵ Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. Table 1: Typical Noise Levels provides typical noise levels.

Table 1: Typical Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	- 110 -	Rock Band
Jet fly-over at 1,000 feet		
	- 100 -	
Gas lawnmower at 3 feet		
	- 90 -	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	- 80 -	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	- 70 -	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	- 60 -	
		Large business office
Quiet urban daytime	- 50 -	Dishwasher in next room
Quiet urban nighttime	- 40 -	Theater, large conference room (background)
Quiet suburban nighttime		
	- 30 -	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	- 20 -	
		Broadcast/recording studio

¹ California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013. Available at <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf>

² Harris, Cyril M., *Noise Control in Buildings: A Practical Guide for Architects and Engineers*, 1994

³ California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013

⁴ Ibid.

⁵ Ibid.

Table 1: Typical Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	- 10 -	
Lowest threshold of human hearing	- 0 -	Lowest threshold of human hearing
Source: California Department of Transportation, <i>Technical Noise Supplement to the Traffic Noise Analysis Protocol</i> , September 2013.		

Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs.⁶ The equivalent noise level (L_{eq}) represents the equivalent continuous sound pressure level over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of sound energy during a 24-hour period, with a 5-dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. Most commonly, environmental sounds are described in terms of L_{eq} that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and defined in Table 2: Definitions of Acoustical Terms.

Table 2: Definitions of Acoustical Terms	
Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in μPa (or 20 microneutons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g. 20 μPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_{01} , L_{10} , L_{50} , L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.

⁶ Ibid.

Table 2: Definitions of Acoustical Terms

Term	Definitions
Day-Night Noise Level (L _{dn})	A 24-hour average L _{eq} with a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L _{eq} would result in a measurement of 66.4 dBA L _{dn} .
Community Noise Equivalent Level (CNEL)	A 24-hour average L _{eq} with a 5-dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L _{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

The A-weighted decibel (dBA) sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA.⁷ Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source.

A-Weighted Decibels

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content.⁸ However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10.⁹ When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound.¹⁰ When two identical sources are each producing sound of the same loudness, the resulting sound level at a given

⁷ Ibid.

⁸ Harris, Cyril M., *Noise Control in Buildings: A Practical Guide for Architects and Engineers*, 1994

⁹ California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013

¹⁰ FHWA, *Noise Fundamentals*, 2017. Available at: https://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/polguide/polguide02.cfm

distance would be 3 dBA higher than one source under the same conditions.¹¹ Under the dB scale, three sources of equal loudness together would produce an increase of approximately 5 dBA.¹²

Sound Propagation and Attenuation

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics.¹³ No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed when soft ground conditions exist between the source and receptor locations.¹⁴ For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed in this report.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm can reduce noise levels by 5 to 15 dBA.¹⁵ The way older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and noises from human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA.¹⁶ Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA.¹⁷ Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). Regarding increases in dBA, the following relationships should be noted:¹⁸

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.

¹¹ Ibid.

¹² California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013

¹³ Ibid.

¹⁴ Federal Highway Administration, *FHWA Traffic Noise Model User's Guide*, January 1998.

¹⁵ Federal Highway Administration, *Highway Traffic and Construction Noise - Problem and Response*, April 2006.

¹⁶ Compiled from James P. Cowan, *Handbook of Environmental Acoustics*, 1994, and Cyril M. Harris, *Handbook of Noise Control*, 1979

¹⁷ Ibid.

¹⁸ Compiled from California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, and FHWA, *Noise Fundamentals*, 2017.

- At least a 5-dBA change is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss. While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within an environment with standard community noise levels including traffic and mechanical equipment noise. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard for workers that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaging over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.¹⁹

Annoyance. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.²⁰

2.2 Ground-Borne Vibration

Sources of ground-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions or heavy equipment used during construction). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero.²¹ Several different methods are typically used to quantify vibration amplitude. One is vibration decibels (VdB) (the vibration velocity level in decibel scale). Other methods are the peak particle velocity (PPV) and the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave and expressed in terms of inches-per-second (in/sec). The RMS velocity is defined as the average of the squared amplitude of the signal and is expressed in terms of VdB.²² The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The human annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibrations, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very

¹⁹ U.S. Department of Labor, Occupational Safety and Health Standards, 29 CFR 1910 (Occupational Noise Exposure).

²⁰ Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.

²¹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018

²² Ibid.

little risk of actual structural damage. Where ground-borne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise (sound waves travel through the air, not groundborne) causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible.²³ Common sources for ground-borne vibration are planes, trains, and construction activities such as earth-moving, which requires the use of heavy-duty earth moving equipment.²⁴ For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) was used to evaluate construction-generated vibration for building damage and human complaints.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations			
Maximum PPV (in/sec)	Caltrans Vibration Annoyance Potential Criteria¹	Caltrans Vibration Damage Potential Threshold Criteria¹	FTA Vibration Damage Criteria²
0.008	--	Extremely fragile historic buildings, ruins, ancient monuments	--
0.08	Readily Perceptible	--	--
0.1	Begins to Annoy	Fragile buildings	--
0.12	--	--	Buildings extremely susceptible to vibration damage
0.2	Annoying	--	Non-engineered timber and masonry buildings
0.25	--	Historic and some old buildings	--
0.3	--	Older residential structures	Engineered concrete and masonry
0.4	Unpleasant	--	--
0.5	--	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel or timber (no plaster)
Source: California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020 and Federal Transit Administration, Transit Noise and Vibration Assessment Manual, 2018.			
1. Caltrans criteria is compiled from various criteria presented in the Transportation and Construction Vibration Guidance Manual.			
2. The FTA recommends use of the criteria presented during environmental impact assessment to identify issues to be addressed through engineering.			

2.3 Ground-Borne Noise

Ground-borne noise specifically refers to the rumbling noise emanating from the motion of building room surfaces due to the vibration of floors and walls; it is perceptible only inside buildings.²⁵ The relationship between ground-borne vibration and ground-borne noise depends on the frequency content of the vibration and the acoustical absorption characteristics of the receiving room. For typical buildings, ground-borne vibration that causes low frequency noise (i.e., the vibration spectrum peak is less than 30 Hz) results in a ground-borne noise level that is approximately 50 decibels lower than the vibration velocity level in decibel scale (VdB). For ground-borne vibration that causes mid-frequency noise (i.e., the vibration spectrum peak is between 30 and 60 Hz), the ground-borne noise level will be approximately 35 dB lower than the VdB. For ground-borne vibration that cause high-frequency noise (i.e., the vibration spectrum peak is greater than 60 Hz), the ground-borne noise level will be approximately 20 dB lower than the VdB.²⁶ The FTA provides ground-

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

borne noise threshold of 43 dBA for infrequent vibration events in Category 2 buildings such as residences and buildings where people normally sleep. For frequent and occasional vibratory events, the FTA established ground-borne noise thresholds of 35 dBA and 38 dBA, respectively.²⁷

²⁷ Ibid.

3 REGULATORY SETTING

3.1 Federal

Federal Transit Administration Noise and Vibration Guidance

The Federal Transit Administration (FTA) has published the Transit Noise and Vibration Impact Assessment Manual (FTA Transit Noise and Vibration Manual) to provide guidance on procedures for assessing impacts at different stages of transit project development.²⁸ The report covers both construction and operational noise impacts and describes a range of measures for controlling excessive noise and vibration. In general, the primary concern regarding vibration relates to potential physical damage from construction. The guidance document establishes criteria for evaluating the potential for damage to various structural categories from vibration.

3.2 State of California

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services.²⁹ The guidelines rank noise land use compatibility in terms of “normally acceptable”, “conditionally acceptable”, “normally unacceptable”, and “clearly unacceptable” noise levels for various land use types. Under these guidelines, single-family homes are located in “normally acceptable” exterior noise environments up to 60 CNEL and in “conditionally acceptable” exterior noise environments up to 70 CNEL. Multiple-family residential uses are located in “normally acceptable” exterior noise environments up to 65 CNEL and in “conditionally acceptable” exterior noise environments up to 70 CNEL. Schools, libraries, and churches are located in “normally acceptable” exterior noise environments up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Assembly Bill 1307

On September 7, 2023, Governor Newsom signed AB 1307, which added section 21085 to the Public Resources Code to read, in pertinent part, “for residential projects, the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment”.³⁰

3.3 Local

City of Inglewood General Plan

The Noise Element of the Inglewood General Plan³¹ (Noise Element) guides the control of noise to protect residents, workers, and visitors from potentially adverse noise impacts. Its primary goal is to regulate long-term noise impacts to preserve acceptable noise environments for all types of land uses. With regard to long-term noise impacts, the Noise Element contains stated goals, policies, and implementation programs for noise control.

²⁸ Ibid.

²⁹ State of California Governor’s Office of Planning and Research, *General Plan Guidelines, Appendix D: Noise Element Guidelines*, page 374, 2017, https://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf. Accessed June 2024.

³⁰ AB 1307, Public Resources Code Section 21085

³¹ City of Inglewood, *General Plan Noise Element*, 1987. <https://www.cityofinglewood.org/209/Inglewood-General-Plan>

Goal 1: Provide for the reduction of noise where the noise environment represents a threat to the public health and welfare.

Goal 2: Reduce noise impacts in degraded areas.

Goal 3: Protect and maintain those areas having acceptable noise environments.

Goal 4: Provide sufficient information concerning the community noise level so that noise can be objectively considered in land use planning decisions.

City of Inglewood 2021-2029 Housing Element

The City of Inglewood 2021-2029 Housing Element, (September 29, 2023) provides a blueprint for how the City can promote better, more secure and affordable housing in keeping with the City's General Plan and Regional Housing Needs Allocation (RHNA). The Housing Element addresses ambient noise conditions within the City, which is located within the Los Angeles International Airport (LAX) Influence Area.³² Any new housing located within the LAX Influence Area, including the Project, would be required to comply with all development standards and regulations to reduce the impact of aircraft noise and achieve an interior noise level of 45 dB.³³ Utilizing grant funds from the Federal Aviation Administration and Los Angeles World Airports, the City continues to rehabilitate and retrofit existing housing uses within the LAX Influence Area, as shown on the 2020 Noise Exposure Contour Map.³⁴

City of Inglewood Municipal Code

The City has adopted regulations to control noise levels within the community. The City's Municipal Code establishes standards for ambient sound. These standards regulate intrusive noises that may be harmful to community members. Chapter 5 (Offenses, Miscellaneous) Article 2 (Noise Regulations) lists the standard for noise levels within the community. Section 5-27, Base Ambient Noise Levels, of the Municipal Code includes assumed base ambient noise levels for residential, commercial, and industrial land use zones. Any measured noise levels exceeding the assumed base ambient noise levels (see Table 4: Base Ambient Noise Level) shall be employed as the base ambient noise level. Maximum exterior and interior residential noise levels pursuant to Section 5-30 Maximum Residential Noise Levels of the Municipal Code are listed in Table 5: Maximum Residential Noise Level.

Table 4: Base Ambient Noise Level		
Decibels	Time	Land Use Zone
45 dB(A)	10:00 p.m. – 7:00 a.m.	Residential
55 dB(A)	7:00 a.m. – 10:00 p.m.	Residential
65 dB(A)	Anytime	Commercial and uses not specified
75 dB(A)	Anytime	Industrial

Source: City of Inglewood Municipal Code Section 5-27, Base Ambient Noise Level

³² Los Angeles County Department of Regional Planning, Los Angeles County Airport Land Use Commission, <https://case.planning.lacounty.gov/aluc/airports#anc-apm>

³³ City of Inglewood Housing Element 2021-2029, September 29, 2023. <https://www.cityofinglewood.org/DocumentCenter/View/19659/2021-2029-Housing-Element-2023>

³⁴ Ibid.

Table 5: Maximum Residential Noise Levels	
Maximum Duration Period	Maximum Duration Period
<i>Exterior Noise Levels</i>	
Base Ambient Noise Level (BANL)	30 minutes in any hour
5 dBA above BANL	15 minutes in any hour
10 dBA above BANL	5 minutes in any hour
15 dBA above BANL	1 minute in any hour
20 dBA above BANL	Not Permitted
<i>Interior Noise Levels</i>	
BANL	5 minutes in any hour
5 dBA above BANL	1 minute in any hour
10 dBA above BANL	Not Permitted
Source: City of Inglewood Municipal Code Section 5-30, Maximum Residential Noise Levels	

Other applicable sections of the Municipal Code are listed below:

Pursuant to **Sections 5-29: Excessive Noise. Unlawful and 5-30: Maximum Residential Noise Level**, establish the City's authority to regulate noise that "disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person residing in the area," and identifies maximum lawful noise levels and maximum duration periods that may be generated on residential properties.

Pursuant to **Section 5-34, Radios, Televisions and Stereos, Noise Regulated**, the operation of any radio, television set, musical instrument, phonograph, stereophonic equipment, jukebox, or other machine or device for producing, reproduction, or amplifying sound is prohibited when audible at a distance of 50 feet or more from the source of the sound and/or when audible within any other residence.

Pursuant to Section 5-39, **Machinery, Equipment, Fans and Air-Conditioning, Noise Regulated**, the operation of any machinery, equipment, device, pump, fan, compressor, air-conditioning apparatus, or similar mechanical device that results in a 5 dBA increase in the base ambient noise level at the property line shall be prohibited.

Pursuant to Section 5-41, **Construction of Buildings and Projects, Noise Regulated**, the operation of equipment or performance of any outdoor construction or repair work on buildings, structures, or projects between the hours of 8:00 p.m. and 7:00 a.m. in a manner that a reasonable person is caused discomfort or annoyance is prohibited unless a permit has been obtained for such work.

Pursuant to Section 5-43: **Motor Driven Vehicles, Noise Regulated**, the operation of any motor driven vehicle that, due to the nature of the operation of the vehicle, condition of the vehicle, or modification made to the vehicle, that would generate noise so that a reasonable person is caused discomfort or annoyance is prohibited.

4 EXISTING CONDITIONS

4.1 Existing Noise Sources

The Project Site is currently impacted by various noise sources. Mobile sources of noise, including traffic along 104th Street, Crenshaw Boulevard, and Yukon Avenue are the most common and prominent existing sources of noise in the Project Site area. Other noticeable existing sources of noise on and near the Project Site include aircraft noise and noise from existing nearby residential and school uses, and other urban-related activities (e.g., idling cars/trucks, pedestrians, car radios and music playing, dogs barking, etc.).

4.2 Noise Measurements

To quantify existing ambient noise levels in the Project Site area, Kimley-Horn conducted four short-term (15-minute) measurements on September 15, 2023; see [Appendix A: Noise Data](#) for additional details regarding how the ambient noise measurements were taken. The noise measurement sites were selected to be representative of the existing ambient noise levels at the noise-sensitive uses immediately adjacent to the Project Site. The 15-minute daytime measurements were taken between 10:27 a.m. and 12:37 p.m. Measurements of L_{eq} are considered representative of the noise levels throughout the day. The average noise levels measured at each location are listed in [Table 6: Existing Noise Measurement Locations and Measurements](#) and shown on [Figure 4: Noise Measurement Locations](#).

Site	Location	Measurement Period	Duration	Daytime Average L_{eq} (dBA)
ST-1	Monroe Middle School Parking Lot, 10 th Avenue	10:27 a.m.	15 min	64.2
ST-2	Northwest corner of Woodworth-Monroe property, 104 th Street	10:58 a.m.	15 min	62.5
ST-3	Southern Project property line at terminus of South Lemoli Avenue	11:27 a.m.	15 min	64.4
ST-4	Southwest corner of Morningside High School Parking Lot, Yukon Avenue	11:59 a.m.	15 min	66.4

Source: Noise measurements taken by Kimley-Horn and Associates, September 15, 2023 See [Appendix A](#) for noise measurement results.



SOURCE: Google Maps, 2024



FIGURE 4 : Noise Measurement Locations

INGLEWOOD MORNINGSIDE PROJECT

4.3 Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Sensitive noise receptors are defined as residences, schools, hospitals, libraries, and parks.³⁵ Sensitive receptors near the Project Site are shown in **Table 7: Sensitive Receptors** (see **Figure 4** and **Figure 5: Sensitive Receptors**), along with the Noise Measurement Location that represents each sensitive receptor.

Table 7: Sensitive Receptors	
Receptor	Distance and Direction from the Project¹
Monroe Middle School – Represented by Noise Measurement ST-1	Adjacent to the east
Morningside High School ² – Represented by Noise Measurement ST-4	Adjacent to the west
Single-Family Residential – Represented by Noise Measurement ST-3	Adjacent to the south
Single-Family Residential – Represented by Noise Measurement ST-2	30 feet north
Single-Family Residential – Represented by Noise Measurement ST-1	745 feet east
Single-Family Residential – Represented by Noise Measurement ST-4	1,300 feet west
Future Child Development Center – Represented by Noise Measurement ST-1	Adjacent to the east
Source: Google Earth, 2024.	
1. Distance measured from Project Site property line to receptor property line.	
2. Note that the IUSD announced the closure of Morningside High School by the end of the 2024-2025 school year.	

³⁵ City of Inglewood, *General Plan Noise Element*, 1987



SOURCE: Nearmap, 2024



FIGURE 4: Sensitive Receptors

INGLEWOOD MORNINGSIDE PROJECT

5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 CEQA Thresholds

California Environmental Quality Act (CEQA) Guidelines Appendix G contains analysis guidelines related to noise impacts. The City has determined to use these guidelines as thresholds of significance for this analysis. A project would create a significant environmental impact if it would:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generate excessive ground-borne vibration or ground-borne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.

5.2 Methodology

Construction

Construction noise levels were based on typical noise levels generated by construction equipment published by the FTA and Federal Highway Administration (FHWA). Construction noise is assessed in dBA L_{eq} . This unit is appropriate because L_{eq} can be used to describe the noise level from the operation of each piece of equipment separately, and the levels can be combined to represent the noise level from all equipment operating concurrently during a given period.

Reference noise levels are used to estimate operational noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise.

The City of Inglewood has not adopted a numerical threshold that identifies what a substantial increase would be for construction. For purposes of this analysis, the criteria from the FTA Transit Noise and Vibration Manual are used to establish significance thresholds. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction. For residential uses, the daytime noise threshold is 80 dBA L_{eq} averaged over 8 hours L_{eq} (8-hr); and the nighttime noise threshold is 70 dBA L_{eq} (8-hr).³⁶ In compliance with the City's Municipal Code, it is assumed that construction would not occur during the noise-sensitive nighttime hours.

Operations

The analysis of the Existing and Existing Plus Project noise environments is based on noise prediction modeling and empirical observations. Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels were collected from published sources from similar types of activities and used to estimate noise levels expected with the Project's stationary sources. The reference noise levels are used to represent a worst-case noise environment as noise levels from stationary sources can vary

³⁶ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018

throughout the day. Operational noise is evaluated based on an incremental increase in ambient noise levels of 5 dBA L_{eq} .

Vibration

Ground-borne vibration levels associated with construction activities for the Project were evaluated utilizing typical ground-borne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment.³⁷ Potential ground-borne vibration impacts related to building/structure damage and interference with sensitive existing operations were evaluated, considering the distance from construction activities to nearby land uses and typically applied criteria for structural damage and human annoyance.

³⁷ Ibid.

6 POTENTIAL IMPACTS AND MITIGATION

6.1 Project-Level Impacts

Threshold 6.1 Would the Project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

On-Site Construction Noise

The City of Inglewood has not adopted a numerical threshold that identifies what a substantial increase would be for construction. For purposes of this analysis, the criteria from the FTA Transit Noise and Vibration Manual are used to establish significance thresholds. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction. For residential uses, the daytime noise threshold is 80 dBA L_{eq} averaged over 8 hours L_{eq} (8-hr); and the nighttime noise threshold is 70 dBA L_{eq} (8-hr).³⁸ As the FTA does not include a recommended threshold for schools, this analysis applies the residential threshold to adjacent school uses. In compliance with the City's Municipal Code, it is assumed that construction would not occur during the noise-sensitive nighttime hours.

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation). Noise generated by construction equipment, including earth movers and material handlers, can reach high levels that can affect noise-sensitive uses near the Project construction site. Construction activities for the Project would include site preparation, grading, excavation, paving, building construction, and architectural coating. Noise levels associated with individual construction equipment to be used during Project construction are listed in [Table 8: Construction Equipment Noise Levels](#).³⁹

It should be noted that the values shown in [Table 8](#) are for the equipment when operating at full power 50 feet from the sensitive receptor, without any intervening structures or topography that may reduce noise levels. Construction noise was calculated accounting for each piece of equipment's usage factor, or the fraction of time that the equipment would be in use at full power over a specific period of time.⁴⁰ Other primary sources of acoustical disturbance may include random incidents, which would last less than one minute (such as dropping of materials or the hydraulic movement of machinery lifts). Construction noise was predicted at the nearest noise-sensitive receptors utilizing the Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (RCNM). When calculating construction noise, the loudest piece of equipment is conservatively assumed to operate at the property line nearest to the studied receptor while all other equipment anticipated for each individual construction phase is assumed to operate at staggering distances throughout the construction area. This methodology accounts for equipment operating throughout the Project Site and not at a fixed location for extended periods of time.⁴¹ Therefore, the distance used in the RCNM model was measured from the property line of the Project Site to the nearest receptor property line (or 25 feet for adjacent school receptor classrooms) for the loudest piece of equipment with all other equipment staggered throughout the construction area.

³⁸ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018

³⁹ Federal Highway Association, *Roadway Construction Noise Model*, User Guide 2005.

⁴⁰ Ibid.

⁴¹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Table 8: Construction Equipment Noise Levels			
Construction Phase	Equipment ¹	Typical Noise Level (dBA L _{max}) at 50 feet from Source	Usage Factor (%)
Site Preparation	Tractor	84	40
	Dozer	82	40
Grading	Grader	85	40
	Scraper	84	40
	Tractor	84	40
	Dozer	82	40
	Excavator	81	40
Infrastructure Improvements	Tractor	84	40
	Dozer	82	40
Paving	Paver	77	50
	Roller	80	20
Building Construction	Tractor	84	40
	Crane	81	16
	Generator	81	50
	Man Lift	75	20
	Welder/Torch	74	40
Architectural Coating	Compressor	78	40
Source: Federal Highway Association, Roadway Construction Noise Model, User Guide 2006			
1. Equipment compiled based on air quality modeling defaults and contractor input.			

Table 9: Project Construction Noise Levels shows the estimated maximum exterior construction noise levels at the nearest receptors to the Project Site.⁴² The FHWA has published guidance on construction measurement, prediction, and mitigation which includes the level of reduction from RCNM reference noise levels that can be achieved through the use of muffler systems.⁴³ The Project would include project design feature (PDF) PDF NOISE-1, which includes the installation and proper maintenance of noise shielding and muffling devices consistent with manufacturers' standards. The Federal Highway Administration (FHWA) indicates that muffler systems can reduce noise levels by 10 dBA or more.⁴⁴ Accounting for a reduction of up to 10 dBA provided by PDF NOISE-1, construction noise levels would still exceed FTA standards to the west, east, and south. Implementation of mitigation would thus be required.

PDF NOISE-1: Noise Shielding and Muffling. Power construction equipment (including combustion engines), fixed or mobile, will be equipped with noise shielding and muffling devices consistent with manufacturers' standards or the Best Available Control Technology. All equipment will be properly maintained, and the Applicant or Owner will require any construction contractor to keep documentation on-site during any earthwork or construction activities demonstrating that the equipment has been maintained in accordance with manufacturer's specifications.

Mitigation measure (MM) **NOISE-1** requires the use of temporary noise barriers such as plywood walls with a minimum ½-inch thickness or sound blankets meeting a sound transmission class (STC) rating of 25. Noise

⁴² For predicted construction noise levels for all construction phases, see [Appendix A](#).

⁴³ Federal Highway Administration, *Special Report - Measurement, Prediction, and Mitigation*, Chapter 4 Mitigation, 2017. https://www.fhwa.dot.gov/environment/noise/construction_noise/special_report/hcn04.cfm

⁴⁴ Federal Highway Administration, *Special Report - Measurement, Prediction, and Mitigation*, Chapter 4 Mitigation, 2017.

barriers shall be a minimum of 8 feet in height and block the line-of-sight between construction activities and noise-sensitive uses to the south, east, and west. Sound blankets meeting a STC 25 rating can achieve a minimum 7 to 10 dBA reduction for construction equipment, such as anticipated Project construction equipment, with 200 Hz or lower frequency.⁴⁵ Reductions of up to 28 dBA can be achieved for construction equipment with 500 Hz frequency.⁴⁶

Table 9: Project Construction Noise Levels

Receptor	Maximum Noise Level at Receptor with PDF prior to MM (L _{eq}) ¹	Maximum Noise Level at Receptor with MM (L _{eq}) ²	Noise Threshold (dBA L _{eq}) ³	Exceeded?
Receptor 1 – Morningside High School (west)	84.4	77.4	80	No
Receptor 2 – Single Family Residential (north)	78.9	71.9		No
Receptor 3 – Monroe Middle School/Future Child Development Center (east)	81.9	74.9		No
Receptor 4 – Single Family Residential (south)	79.2	72.2		No
Receptor 5 – Future Child Development Center (east)	79.2	72.2		No
1. Assumes noise level reductions of up to 10 dBA provided by PDF NOISE-1 (Noise Shielding and Muffling).				
2. Assumes a minimum of 7 dBA provided by MM NOISE-1 (Temporary Walls).				
3. Per the FTA's guidelines, daytime construction noise shall be limited to a maximum of 80 dBA L _{eq} at residential uses.				
Source: Federal Highway Administration, <i>Roadway Construction Noise Model</i> , 2006. Refer to Appendix A for noise modeling results for each construction phase.				

As shown in [Table 9](#), Project construction noise would not exceed the FTA's significance criterion of 80 dBA L_{eq} with implementation of mitigation measure **MM NOISE-1**. It should be noted that the IUSD announced the closure of Morningside High School by the end of the 2024-2025 school year. In the event that Morningside High School terminates instruction and a noise-sensitive use does not utilize the space, temporary noise barriers shall not be required along the western boundary of the Project.

In addition, construction-related noise would be temporary and would not result in a permanent increase in ambient noise levels in the area. Project construction would take place on Mondays through Fridays and would not require construction activities on the weekends. Construction activities would also be prohibited between the hours of 8:00 p.m. and 7:00 a.m. Monday through Friday. The City's permitted hours of construction are required in recognition that construction activities undertaken during daytime hours are a typical part of living in an urban environment and do not cause a significant impact. For all of these reasons, the Project would not result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies during construction. Construction noise impacts would be less than significant with mitigation incorporated.

Off-Site Construction Noise

In addition to on-site construction noise, the Project would generate mobile noise from delivery/haul trucks and construction workers traveling to and from the Project Site during Project construction. Haul trucks would likely travel to and from the Project Site using 104th Street and Crenshaw Boulevard. Haul and delivery trucks

⁴⁵ Environmental Noise Control. *Portable Acoustic Panels*, 2024. Available at: Portable Acoustic Panels - Environmental Noise Control (environmental-noise-control.com)

⁴⁶ Ibid.

and construction workers are expected to arrive at the Project Site before construction starts and leave when construction ends, and thus, would not overlap with the Project's on-site construction equipment. In addition, construction workers would come from various directions to the Project Site and would not arrive along one designated route. According to modeling assumptions included in the air quality assessment prepared by Kimley-Horn in July 2024, the construction phase with the highest assumed number of trucks is grading. There would be up to 23 daily haul truck trips accessing the Project Site during the grading phase. A truck pass-by event would generate noise levels of up to 70 dBA Leq at 50 feet.⁴⁷ As shown in Table 14, below, existing traffic noise would range from 60.4 dB to 71.7 dB. Assuming all 23 haul trucks would pass through the same roadway segment within a 15-minute period, the estimated noise level from grading haul truck trips would be 64.2 dBA Leq at 50 feet from the roadway centerline. This worst-case noise level would not exceed the FTA's significance criterion of 80 dBA Leq for construction activities. In addition, on-road construction truck pass-bys would not result in noise levels greater than 5 dBA over existing conditions. Therefore, the Project's potential off-site construction traffic noise impacts would be less than significant because they would not generate a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies during construction. Accordingly, no mitigation measures are required.

Operations

The Project consists of a residential community that includes 571 townhomes, two clubhouses for resident use only, and miscellaneous amenities and open space. Project operations would result in the generation of noise from mechanical equipment (e.g., HVAC, etc.), parking and access noise, and trash/recycling truck pickup noise. Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels were collected from published sources from similar types of activities and used to estimate noise levels expected with the Project's stationary sources. The reference noise levels are used to represent a worst-case noise environment as noise levels from stationary sources can vary throughout the day. Operational noise is evaluated based on an incremental increase in ambient noise levels of 5 dBA Leq.

On-Site Mechanical Equipment Noise

Potential stationary noise sources related to long-term Project operations would include mechanical equipment (e.g., HVAC equipment) located at the townhomes. Mechanical equipment (e.g., HVAC equipment) typically generates noise levels of approximately 52 dBA at 50 feet.⁴⁸ Pursuant to the Inglewood Municipal Code Section 5-39 (Machinery, Equipment, Fans, and Air-Conditioning), the operation of any machinery, equipment, device, pump, fan, compressor, air-conditioning apparatus, or similar mechanical device shall not create any noise which would cause the ambient noise level at the property line to increase by more than 5 dBA. Assuming that an HVAC unit is operated nearest to each receptor and not accounting for shielding provided by potential screening or architectural features, noise levels have been calculated and shown in [Table 10: Mechanical Equipment Noise Levels](#). As shown, mechanical equipment noise levels would not increase ambient noise levels beyond the acceptable levels (5 dBA over ambient). Project mechanical equipment would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, the Project would result in less than significant noise impacts related to the operation of on-site mechanical equipment and no mitigation measures are required.

⁴⁷ University of Washington Department of Environmental and Occupational Health Sciences, Noise Navigator Sound Level Database, July 6, 2010

⁴⁸ Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010

Table 10: Mechanical Equipment Noise Levels

Receptor	Level at Receptor (dBA) ²	Ambient Level (dBA) ³	Ambient + Project Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant?
1 – Morningside High School (west)	58.0	66.4	67.0	0.6	5.0	No
2 – Single Family Residential (north)	52.0	62.5	62.9	0.4	5.0	No
3 – Monroe Middle School (east)	58.0	64.2	65.1	0.9	5.0	No
4 – Single Family Residential (south)	58.0	64.4	65.3	0.9	5.0	No
5 – Future Child Development Center (east)	58.0	66.4	67.0	0.6	5.0	No
1. Distance estimated assuming equipment location located nearest to each receptor. 2. Distance attenuation calculated assuming reference noise level of 52 dBA Leq at 50 feet: Source for reference level: Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010. 3. See Table 6 and Table 7 for representative ambient noise levels.						

Open Space

The Project would include outdoor living (open) spaces for residents including two outdoor pool areas, pocket park, and miscellaneous passive open space. Per Assembly Bill 1307 (Public Resources Code Section 21085), for residential uses, the effects of noise generated by Project occupants and their guests on human beings is not a significant effect on the environment. Therefore, no further analysis is required.

Amplified Music

Noise levels from the potential installation of an amplified sound system at proposed club houses and outdoor pool areas have been estimated. This analysis does not apply to personal speakers (i.e., personal stereos or speakers) that may be operated by residents of the Project. It is assumed that the use of amplified sound systems would be allowable only during daytime hours (7:00 a.m. to 10:00 p.m.) as detailed in Project Design Feature - 1 (PDF-NOISE-2), below.

PDF NOISE -2 Operation of permanently wired amplified sound systems at outdoor club house space and pool areas shall be limited to the hours of 7:00 a.m. to 10:00 p.m. and shall not exceed a volume of 80 dBA measured at 3 feet from any speaker. In addition, all speakers shall be designed and installed to direct sound toward the center of the Project pool area.

Although amplified music from residential living areas typically includes background music that allows for conversation to take place, it has been assumed that sound levels would equate to loud music playing on a stereo to ensure a worst-case analysis. Music playing on a stereo generates noise levels of approximately 80 dBA at 3 feet from the speaker.⁴⁹ Although direct line-of-sight may not be available and shielding could be provided by perimeter walls and architectural features, noise level reductions (for shielding) have not been assumed in the modeling. Consequently, maximum noise levels reaching each receptor from each outdoor living space have been combined to provide an overall worst-case estimate of potential amplified music, assuming both spaces would utilize amplified sound systems simultaneously.

As shown in [Table 11: Outdoor Amplified Music Noise Levels](#), noise levels from the outdoor open spaces generated by a permanent amplified sound system would not increase ambient noise levels beyond the acceptable levels (5 dBA over ambient pursuant to the City's Municipal Code). Project open space areas would not result in the generation of a substantial permanent increase in ambient noise levels due to amplified music

⁴⁹ Ibid.

in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, the Project would result in a less than significant impact due to noise from outdoor open space generated by amplified music and no mitigation measures are required.

Table 11: Outdoor Amplified Music Noise Levels

Receptor ¹	Combined Amplified Noise Level at Receptor (dBA)	Ambient Level (dBA) ²	Ambient + Amplified Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant?
1 – Morningside High School (west)	44.4	66.4	66.4	0.0	5.0	No
2 – Single Family Residential (north)	39.1	62.5	62.5	0.0	5.0	No
3 – Monroe Middle School (east)	54.8	64.2	64.7	0.5	5.0	No
4 – Single Family Residential (south)	33.8	64.4	64.4	0.0	5.0	No
5 – Future Child Development Center (east)	41.6	66.4	66.4	0.0	5.0	No

1. Distance measured from center of pool area to receptor property line.

2. See Table 6 and Table 7 for representative ambient noise levels.

Trash and Recycling Pick-Up

Trash and recycling would be picked up along the internal Project drive aisles. Trash and recycling trucks and pickup activities customarily generate noise levels of approximately 85 dBA at approximately 3.3 feet.⁵⁰ Trash and recycling truck pickup activity servicing the Project Site area currently occurs under existing conditions and would not be a new noise source. However, trash and recycling truck noise levels have been estimated based on the nearest drive aisle to each sensitive receptor.

As shown in Table 12: Trash and Recycling Truck Noise Levels, noise levels from trash and recycling truck pick up would not increase ambient noise levels beyond the acceptable levels (5 dBA over ambient). Trash and recycling truck pickup activity would not result in the generation of a substantial permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, the Project would result in a less than significant impact due to noise generated by trash and recycling trucks and no mitigation measures are required.

Table 12: Trash and Recycling Truck Noise Levels

Receptor ¹	Trash Truck Noise Level at Receptor (dBA)	Ambient Level (dBA) ²	Ambient + Trash Truck Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant?
1 – Morningside High School (west)	55.4	66.4	66.7	0.3	5.0	No
2 – Single Family Residential (north)	47.8	62.5	62.6	0.1	5.0	No
3 – Monroe Middle School (east)	51.0	64.2	64.4	0.2	5.0	No
4 – Single Family Residential (south)	61.4	64.4	66.2	1.8	5.0	No
5 – Future Child Development Center (east)	61.4	66.4	67.6	1.2	5.0	No

1. Distance measured from nearest drive aisle to receptor property line.

2. See Table 6 and Table 7 for representative ambient noise levels.

⁵⁰ Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010

On-Site Parking

Passenger vehicles would access the Project Site from two entrances on 104th Street and one on Lemoli Avenue. Noises associated with parking activities include noise associated with vehicles starting and stopping, vehicle doors closing, car horns and car alarms, loading and unloading and conversations. The noise levels from these activities can reach 63 dBA L_{eq} and are short-term.⁵¹ Each of the proposed units would include private attached garage spaces and on-street parking would be provided throughout the project along Lemoli Avenue, Darby Avenue, and Morningside Drive. The residential parking spaces would be enclosed and would not result in measurable increases in ambient noise levels within the Project Site area. On-street parking spaces would be dispersed throughout the interior of the Project Site, shielded by Project buildings, and would not be concentrated in a surface parking lot. As such, on-street parking is not expected to result in measurable increases in ambient noise levels within the Project Site area. Therefore, noise levels generated by Project parking activities, vehicle access, loading and unloading would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project Site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The potential impacts would be less than significant, and no mitigation measures are required.

On-Site Traffic

Passenger vehicles would access the Project Site from two entrances on 104th Street and one on Lemoli Avenue. On-site traffic noise levels were calculated using the methodology described in the FHWA Traffic Noise Model Technical Manual (1998) and calculations were validated with the results from FHWA's Traffic Noise Model Version 2.5. According to Project Traffic Study, the Project would generate 4,111 daily vehicle trips, consisting of 274 AM peak hour trips and 326 PM peak hour trips. Based on 326 peak hour auto trips, on-site travel would generate noise levels of 54.8 dBA L_{eq} at 50 feet from the roadway centerline. Based on this noise level, noise levels reaching nearby sensitive receptors were calculated based on the distance to the nearest on-site drive aisle.

As shown in **Table 13: On-Site Traffic Noise Levels**, noise levels from on-site vehicular travel would not increase ambient noise levels beyond the acceptable levels (5 dBA over ambient). On-site vehicular travel would not result in the generation of a substantial permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, the Project would result in a less than significant impact due to noise generated by on-site trips and no mitigation measures are required.

⁵¹ Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.

Table 13: On-Site Traffic Noise Levels

Receptor ¹	On-Site Traffic Noise Level at Receptor (dBA)	Ambient Level (dBA) ²	Ambient + On-Site Traffic Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant?
1 – Morningside High School (west)	48.8	66.4	66.5	0.1	5.0	No
2 – Single Family Residential (north)	41.2	62.5	62.5	0.0	5.0	No
3 – Monroe Middle School (east)	44.4	64.2	64.2	0.0	5.0	No
4 – Single Family Residential (south)	54.8	64.4	64.9	0.5	5.0	No
5 – Future Child Development Center (east)	60.8	66.4	67.5	1.1	5.0	No

1. Distance measured from nearest drive aisle to receptor property line.
2. See [Table 6](#) and [Table 7](#) for representative ambient noise levels.

On-Site Composite Noise

An evaluation of the Project's composite noise levels, including all on-site Project-related noise sources plus the existing ambient level, was conducted to identify the potential maximum Project-related noise level increase that may occur at noise-sensitive receptor locations. On-site noise sources associated with the Project would include the use of mechanical equipment and amplified music at outdoor spaces and the addition of trash/recycling pick up activity and on-site vehicle trips on an existing vacant site.

As described above, reference noise level data are used to estimate the Project operational noise impacts from stationary sources at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance. Noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. On-site noise sources were then combined by adding noise sources logarithmically using the formula below to estimate a combined composite on-site noise level:

$$L = 10 \log_{10} \left(\sum_{i=1}^n 10^{(L_i/10)} \right)$$

[Table 14: Composite On-Site Noise Levels](#), presents the estimated composite noise from on-site Project-related noise sources at noise sensitive receptors. As reported in [Table 14](#), the Project would result in a maximum increase of 2.7 dBA at the single-family residential uses located to the south of the Project Site, and lower dBA increases at other adjacent sensitive receptors. Composite Project noise levels would be below the 5 dBA L_{eq} significance threshold. Composite operational noise levels would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, the on-site composite noise level would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project Site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. The potential impacts would be less than significant, and no mitigation measures are required.

Off-Site Traffic Noise

Implementation of the Project would generate increased traffic volumes along nearby roadway segments. According to the Average Daily Traffic (ADT) Volumes provided in the traffic analysis prepared by Kimley Horn⁵², the Project would increase the ADT volume that would result in noise increases on Project Site area roadways. Traffic noise levels for roadways primarily affected by the Project were calculated using the FHWA's Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise modeling was conducted for conditions with and without the Project, based on traffic volumes from the Transportation Assessment. As shown in Table 15: Opening Year and Opening Year Plus Project Traffic Noise Levels, Opening Year Plus Project traffic-generated noise levels on Project Site area roadways would range between 61.4 dBA CNEL and 72.3 dBA CNEL at a standard distance of 50 feet from the roadway centerline, and the Project would result in a maximum increase of 0.4 dBA CNEL along 104th Street between Yukon Avenue and Crenshaw Boulevard, and all other locations studied results in smaller increases. Increases in traffic noise would not result in increases beyond acceptable levels (see Thresholds section above). Therefore, impacts would be less than significant.

⁵² Kimley-Horn and Associates, Inc., Inglewood Residential Project Traffic Assessment, July 2024

Table 14: Composite On-Site Noise Levels

Receptor	Mechanical Equipment (dBA L _{eq})	Amplified Noise (dBA L _{eq})	Trash Truck (dBA L _{eq})	On-Site Traffic (dBA L _{eq})	Combined On-Site Project Noise Level (dBA L _{eq})	Ambient Level (dBA L _{eq}) ¹	Ambient + Project Noise at Receptor (dBA L _{eq})	Incremental Increase (dBA L _{eq})	Incremental Increase Threshold (dBA L _{eq})	Significant ?
1 – Morningside High School (west)	58.0	44.4	55.4	48.8	60.0	66.4	67.4	1.0	5.0	No
2 – Single Family Residential (north)	52.0	39.1	47.8	41.2	53.5	62.5	63.0	0.5	5.0	No
3 – Monroe Middle School/Future Child Development Center (east)	58.0	54.8	51.0	44.4	60.3	64.2	65.7	1.5	5.0	No
4 – Single Family Residential (south)	58.0	33.8	61.4	54.8	63.0	64.4	67.1	2.7	5.0	No
5 – Future Child Development Center (east)	58.0	41.6	61.4	60.8	65.1	66.4	68.8	2.4	5.0	No
1. See Table 6 and Table 7 for representative ambient noise levels.										

Table 15: Opening Year and Opening Year Plus Project Traffic Noise Levels

Roadway Segment	Opening Year		Opening Year + Project		Incremental Increase (CNEL)	Incremental Increase Threshold (CNEL)	Significant Impact?
	ADT	dBA CNEL ¹	ADT	dBA CNEL ¹			
104 th St between Yukon Ave and Crenshaw Blvd	12,150	62.2	13,390	62.6	0.4	5.0	No
Century Blvd between Yukon Ave and Crenshaw Blvd	38,940	72.3	38,940	72.3	0.0	5.0	No
Crenshaw Blvd between Century Blvd and 104 th St	37,050	71.1	37,880	71.2	0.1	5.0	No
Crenshaw Blvd between 104 th St and 108 th St	41,070	71.6	41,280	71.6	0.0	5.0	No
Crenshaw Blvd between 108 th St and 109 th St	44,600	71.9	45,220	72.0	0.1	5.0	No
Crenshaw Blvd between 109 th St and Thoreau St	38,050	71.3	38,670	71.3	0.0	5.0	No
Yukon Ave between Century Blvd and 104 th St	15,060	65.1	16,090	65.4	0.3	5.0	No
Yukon Ave between 104 th St to 108 th St	10,180	61.4	10,180	61.4	0.0	5.0	No
ADT = average daily trips; dBA = A-weighted decibels; CNEL= Community Equivalent Noise Level Traffic noise levels are at 50 feet from the roadway centerline. Source: Based on traffic data provided by Kimley-Horn and Associates, Inc., July 2024. Refer to Appendix A for traffic noise modeling results.							

Mitigation Measures: The following mitigation measure is required during Project construction.

MM NOISE-1: Temporary Walls. Noise barriers, such as temporary walls (minimum ½-inch thick plywood) or sound blankets (minimum STC 25 rating), that are a minimum of eight feet tall, shall be erected along the western, eastern, and southern Project boundaries such that the line-of-sight between noise-sensitive uses and construction activities are blocked. Should instruction be terminated at Morningside High School while the Project is undergoing construction, temporary walls shall not be required along the western Project boundary provided that the school remains vacant or noise-sensitive uses do not utilize the space.

Level of Significance: Less than significant impact with mitigation incorporated.

Threshold 6.2 Would the Project generate excessive ground-borne vibration or ground-borne noise levels?

Construction

On-Site Construction Vibration

Increases in ground-borne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Project construction would have the potential to result in varying degrees of temporary ground-borne vibration, depending on the specific construction equipment used and the operations involved.

The FTA and Caltrans have published standard vibration velocities for construction equipment operations. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. Receptors susceptible to building damage include all structures located adjacent to the Project Site. The nearest vibration-sensitive structures to the Project Site are the single-family residential units to the south. This evaluation uses the structural damage criteria of 0.3 in/sec PPV for “older residential structures” as the homes located to the south of the Project are more than 50 years old.⁵³ The Morningside High School Campus is located within a historic district. This evaluation uses the structural damage criteria of 0.25 in/sec PPV for “historic and some old buildings” for Morningside High School buildings. This evaluation uses a human annoyance criteria of 0.2 in/sec PPV (point of annoying).

Table 16: Typical Construction Equipment Vibration Levels lists the reference vibration levels for typical construction equipment (measured at 25 feet). The ground-borne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As shown in Table 16, based on FTA data, vibration velocities from typical heavy construction equipment that would be used during Project construction range from 0.076 to 0.21 in/sec PPV at 25 feet from the source of activity. Equipment expected to be used at the Project site that FTA guidance includes reference vibration levels for include loaded haul trucks, vibratory compactor/roller, and large bulldozer.⁵⁴ As shown in Table 16, at 25 feet, the operation of loaded haul trucks and large bulldozer would not exceed the threshold of 0.3 in/sec PPV for older residential uses or 0.2 in/sec PPV for human annoyance at the residential uses to the south. The nearest structure on the Morningside High School campus is located approximately 100 feet from the Project

⁵³ Los Angeles County Office of the Assessor Property Assessment Information System, <https://maps.assessor.lacounty.gov/m/>

⁵⁴ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018. For equipment where FTA guidance does not include reference vibration levels for are assumed to not require analysis.

boundary. At 100 feet, construction activities would not exceed 0.25 in/sec PPV for historic buildings or 0.3 in/sec PPV for human annoyance at Morningside High School. The nearest vibration-sensitive structures are the older residential structures located as near as 10 feet from potential construction equipment activity. At 10 feet, vibration velocities would exceed both the structural damage and human annoyance threshold of 0.3 in/sec PPV and 0.2 in/sec PPV, respectively. Therefore, mitigation is required.

The required distances at which loaded trucks, large bulldozers, and vibratory compactors/rollers need to remain from adjacent structures is included as mitigation measure MM NOISE-2. At 15 feet, the operation of loaded trucks and large bulldozers would generate vibration velocities of 0.164 in/sec PPV and 0.191 in/sec PPV respectively, which would not exceed the applicable structural damage or human annoyance thresholds. At a distance of 26 feet, the use of a vibratory compactor/roller would not exceed structural damage or human annoyance thresholds. With incorporation of MM NOISE-2, structural damage and human annoyance thresholds would not be exceeded.

Table 16: Typical Construction Equipment Vibration Levels

Equipment	Reference Level PPV at 25 Feet (in/sec)	PPV at 10 Feet (in/sec)	PPV at 15 Feet (in/sec)	PPV at 26 Feet (in/sec)
Loaded Trucks	0.076	0.300	0.164	0.072
Large Bulldozer	0.089	0.352	0.191	0.084
Vibratory Compactor/Roller	0.210	0.830	0.452	0.198
Structural Damage Threshold	--	0.30	0.30	0.30
Exceeds Thresholds?	--	Yes	Yes	No
Human Annoyance Threshold	--	0.20	0.20	0.20
Exceeds Thresholds?	--	Yes	Yes	No
Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Manual</i> , September 2018.				
1. Per Mitigation Measure NOISE-2, large bulldozers and loaded trucks shall be a minimum distance of 15 feet from any adjacent structure and vibrator rollers shall be a minimum of 26 feet from any adjacent structure.				

Off-Site Construction Vibration

With regard to construction trucks, Project construction would involve truck travel along nearby roadways, generating vibration events with each passing truck. According to the FTA's Transit Noise and Vibration Impact Assessment, a heavy truck rarely creates vibration levels that exceed 0.012 in/sec PPV at 50 feet when on a roadway.⁵⁵ The factors influencing levels of ground-borne vibration include vehicle speed, vehicle suspension, and wheel condition and type. The frequency of vibration events is not listed as an influencing factor for vibration velocity by the FTA.⁵⁶ As such, multiple trucks traveling along the roadway would increase the frequency of vibration events but would not affect the vibration velocity experienced by receptors. Therefore, vibration impacts associated with construction of the Project would be less than significant and no mitigation measures are required.

On-Site Ground-Borne Noise

According to the FTA, airborne noise levels are higher than ground-borne noise levels.⁵⁷ Unless indoor receptors have substantial sound insulation (e.g., recording studio) and would be exposed to vibration velocities great enough to cause substantial levels of ground-borne noise, ground-borne noise does not need

⁵⁵ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

⁵⁶ Ibid.

⁵⁷ Ibid.

to be assessed.⁵⁸ Ground-borne noise is typically assessed for locations where subway or tunnel operations (where there is no airborne noise path) are present.⁵⁹ The Project would not include a subway or tunnel, and all construction equipment would be located at grade. In addition, there are no substantially insulated indoor noise receptors located within the area surrounding the Project Site. Therefore, the effects of airborne noise would still be higher than ground-borne noise levels and impacts related to ground-borne noise during Project construction would be less than significant and no mitigation is required.

Operation

With respect to vibration-generating activities, operation of the Project would primarily involve personal automobiles used by residents and delivery trucks (e.g., UPS, FedEx, etc.). Due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity. According to the FTA's Transit Noise and Vibration Impact Assessment, trucks rarely create vibration levels that exceed 0.012 in/sec PPV when they are on roadways.⁶⁰ Therefore, operation of the Project would result in less than significant ground-borne vibration impacts, and no mitigation is required.

Mitigation Measures: The following mitigation measure is required during Project construction.

MM NOISE-2: The use of large bulldozers and loaded trucks shall be a minimum of 15 feet away from any adjacent structure. The use of a vibratory compactor/roller shall be a minimum of 26 feet away from any adjacent structure. Any activity requiring a compactor or roller within 26 feet of an adjacent structure shall be conducted using a non-vibratory/static roller or a walk-behind roller.

Level of Significance: Less than significant impact with mitigation incorporated.

Threshold 6.3 For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

The Project Site is located approximately 2.8 miles east of the Los Angeles International Airport (LAX) and 1 mile north of the Hawthorne Municipal Airport. The Project Site is not located within the Planning Boundary/Influence Area for Hawthorne Municipal Airport. According to the latest quarterly noise contours for LAX, the Project Site is located within the 65 dBA CNEL noise contour, which is consistent with the existing daytime ambient noise levels within the Project area. According to the Los Angeles County Airport Land Use Plan, residential uses within the 65 dBA noise contour "shall review noise insulation needs" and impacts are presumed to be potentially significant, requiring implementation of mitigation. The Inglewood 2021-2029 Housing Element implements a Residential Sound Insulation Program, which includes sound insulation utilizing grant funds from the Federal Aviation Administration and Los Angeles World Airports. The Project site is located within Phase 4 of the City's Sound Insulation Program. Mitigation Measure NOISE-3 includes requirements consistent with the Sound Insulation Program and requires either upgraded heating and cooling mechanical systems or the installation of noise insulation features. Mitigation Measure NOISE-3 requires the

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ Ibid.

verification that all internal living spaces achieve a 45 dBA noise level as well as meet exterior standards in the Municipal Code. Impacts would be less than significant with mitigation implementation.

Mitigation Measures: The following mitigation measure is required.

MM NOISE-3: Areas of the Project that includes residential uses within 65 CNEL noise contour of LAX shall be designed to meet the City's interior noise standard of 45 CNEL, as well as meet exterior standards for the applicable zoning designation in outdoor areas, as provided by Inglewood Municipal Code, Section 5-30. Measures include, but are not limited to, the installation of upgraded heating and cooling mechanical systems that allow residents to keep windows closed and the installation of noise insulation features such as noise walls, glass noise barriers, double pane windows, insulated doors, roofing and siding, and landscaping.

Upon receipt of a development application that includes residential uses, such as the Proposed Project, within the 65 dB CNEL noise contour of LAX, the City Planning Division shall conduct a review of noise generation in the proposed development area and project features to be included to reduce noise levels to meet the City's Municipal Code requirements.

Level of Significance: Less than significant impact.

6.2 Cumulative Noise and Vibration Impacts

Cumulative Construction Noise

For the reasons set forth in the discussions above, the Project's construction activities would not result in a substantial temporary increase in ambient noise levels. Construction noise would be periodic and temporary noise impacts that would cease upon completion of construction activities. The Project would contribute to other proximate construction project noise impacts if construction activities were conducted concurrently. Noise from construction of projects is typically localized. In addition, construction noise would be attenuated by distance and intervening buildings, typical in an urban setting.

Construction of the future Child Development Center to be located adjacent to the Project site to the east would potentially be under construction while the Project is under construction. Construction activities of the Child Development Center as well as other planned and approved projects near the Project Site would be required to comply with applicable City regulations related to noise and would take place during daytime hours on the days permitted by Municipal Code Section 5-41, and projects requiring discretionary City approvals would be required to evaluate construction noise impacts, comply with the City's standard conditions of approval, and implement mitigation, if necessary, to minimize noise impacts. Construction noise impacts are by nature localized. Based on the fact that noise dissipates as it travels away from its source, noise impacts would be limited to the Project Site and vicinity. Potential overlap of Project construction with the Child Development Center could combine noise and result increased temporary noise level increases at Monroe Middle School and residential uses to the north and east. As discussed above, Project construction would not result in significant impacts with incorporation of PDFs and implementation of mitigation. Therefore, Project construction would not result in a cumulatively considerable contribution to significant cumulative impacts, and impacts in this regard are not cumulatively considerable.

Cumulative Construction Vibration

Ground-borne vibration decreases rapidly with distance. Potential vibration impacts are generally limited to buildings and structures that are located in close proximity of construction activity. Due to the rapid

attenuation characteristics of ground-borne vibration and given the distance of the nearest related project to the Project Site, there is no potential for cumulative construction vibration impact.

Cumulative Operational Noise

Cumulative Off-Site Traffic Noise. The cumulative mobile noise analysis is conducted in a two-step process. First, the combined effects from both the Project and other projects are assessed. Second, for combined effects that are determined to be cumulatively significant, the Project's incremental effects are then analyzed. A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect compares the "Cumulative With Project" condition to "Existing" conditions. This comparison accounts for the traffic noise increase generated by the Project combined with the traffic noise increase generated by cumulative projects and ambient growth.

The following criteria are used to evaluate whether the Cumulative with Project noise level would create a significant cumulative noise increase and whether the Project has an incremental effect in the cumulative noise increase.

- **Combined Effect.** The cumulative with Project noise level ("Cumulative With Project") would cause a significant cumulative impact if a 3.0 dB increase over "Existing" conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use.
- **Incremental Effects.** The Project would cause a significant incremental effect if the "Cumulative With Project" condition causes a 1.0 dBA increase in noise over the "Cumulative Without Project" noise level.

Thus, although there may be a significant noise increase due to the Project in combination with identified cumulative projects (combined effects), the impact would only be significant if it can be demonstrated that the Project has an incremental effect exceeding 1.0 dBA. In other words, a significant portion of the noise increase must be due to the Project.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded and if noise levels exceed acceptable noise levels. Noise by definition is a localized phenomenon and reduces as distance from the source increases. Consequently, only the Project and growth due to occur in the general area would contribute to cumulative noise impacts. Increases in local volumes from related projects within a half-mile radius of the Project Site have been estimated and included in cumulative traffic conditions. **Table 17: Cumulative With Project Buildout Conditions Traffic Noise Levels** identifies the traffic noise effects along roadway segments in the vicinity of the Project site for "Existing," "Cumulative Without Project," and "Cumulative With Project," conditions, and net cumulative impacts.

Roadway Segment	CNEL @ 50 feet from Centerline ¹			Combined Effects ²	Incremental Effects ³	Cumulatively Significant Impact?
	Existing	Cumulative Without Project	Cumulative With Project	dBA Difference: Existing and Cumulative With Project	dBA Difference: Cumulative Without and With Project	
104 th St between Yukon Ave and Crenshaw Blvd	60.4	62.2	62.6	2.2	0.4	No
Century Blvd between Yukon Ave and Crenshaw Blvd	71.7	72.3	72.3	0.6	0.0	No
Crenshaw Blvd between	70.5	71.1	71.2	0.7	0.1	No

Table 17: Cumulative With Project Buildout Conditions Traffic Noise Levels						
Roadway Segment	CNEL @ 50 feet from Centerline ¹			Combined Effects ²	Incremental Effects ³	Cumulatively Significant Impact?
	Existing	Cumulative Without Project	Cumulative With Project	dBA Difference: Existing and Cumulative With Project	dBA Difference: Cumulative Without and With Project	
Century Blvd and 104 th St						
Crenshaw Blvd between 104 th St and 108 th St	70.5	71.6	71.6	1.1	0.0	No
Crenshaw Blvd between 108 th St and 109 th St	70.9	71.9	72.0	1.1	0.1	No
Crenshaw Blvd between 109 th St and Thoreau St	70.1	71.3	71.3	1.2	0.0	No
Yukon Ave between Century Blvd and 104 th St	64.4	65.1	65.4	1.0	0.3	No
Yukon Ave between 104 th St to 108 th St	60.7	61.4	61.4	0.7	0.0	No
ADT = average daily trips; dBA = A-weighted decibels; CNEL = day-night noise level						
1. Traffic noise levels are at 50 feet from the roadway centerline.						
2. The cumulative with Project noise level ("Cumulative With Project") would cause a significant cumulative impact if a 3.0 dB increase over "Existing" conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use.						
3. The Project would cause a significant incremental effect if the "Cumulative With Project" condition causes a 1.0 dBA increase in noise over the "Cumulative Without Project" noise level.						
Refer to Appendix A for traffic noise modeling assumptions and results.						

First, it must be determined whether the "Cumulative With Project" 3.0 dB increase above existing conditions (*Combined Effects*) is exceeded. Next, under the *Incremental Effects* criteria, cumulative noise impacts are defined by determining if the forecast ambient ("Cumulative Without Project") noise level is increased by 1.0 dB or more. As shown in [Table 17](#), Combined Effects (3.0 dB) and Incremental Effects (1.0 dB) criteria have not been exceeded along any of the studied roadway segments. Thus, the Project, in combination with cumulative background traffic noise levels, would result in a less than significant cumulative impact. The Project's contribution to traffic noise would not be cumulatively considerable.

Cumulative Stationary Noise. Stationary noise sources of the Project would result in an incremental increase in non-transportation noise sources in the Project Site vicinity. However, as discussed above, operational noise caused by the Project would be less than significant. Similar to the Project, other planned and approved projects would be required to mitigate for stationary noise impacts at nearby sensitive receptors, if necessary. As stationary noise sources are generally localized, there is a limited potential for other projects to contribute to cumulative noise impacts.

No known past, present, or reasonably foreseeable projects would combine with the operational noise levels generated by the Project to increase noise levels above acceptable standards because each project must comply with applicable City regulations that limit operational noise. Therefore, the Project, together with other projects, would not create a significant cumulative impact, and even if there were such a significant cumulative impact, the Project would not make a cumulatively considerable contribution to significant cumulative operational noises.

Given that noise dissipates as it travels away from its source, operational noise impacts from on-site activities and other stationary sources would be limited to the Project Site and vicinity. Thus, cumulative operational noise impacts from related projects, in conjunction with Project specific noise impacts, would not be cumulatively significant.

Cumulative Operational Vibration Impacts

Operation of the Project would primarily involve personal automobiles used by residents and delivery trucks (e.g., UPS, FedEx, etc.). Due to the rapid drop-off rate of ground-borne vibration, the short duration of the associated events, and the distance of cumulative projects, there is no potential for cumulative operational vibration impact.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

7 REFERENCES

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Appendix A

NOISE DATA

Noise Measurement Field Data

Project:	Inglewood Project	Job Number:	199008001	
Site No.:	ST-1	Date:	9/15/2023	
Analyst:	Ryan Callahan	Time:	10:27 AM	
Location:	Front of parking lot for Monroe middle school, 10th Avenue			
Noise Sources:	Airplane overhead, landscaping equipment			
Comments:				
Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	64.2	45.5	76.6	89.3

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	67°F
Wind (mph):	< 5
Sky:	Partly Cloudy
Bar. Pressure:	29.97 inHg
Humidity:	45%

Photo:



Summary			
File Name on Meter	Ing.087.s		
File Name on PC	LxTse_0005586-20231115 10:27:27-Ing.087.idbin		
Serial Number	0005586		
Model	SoundExpert® LxT		
Firmware Version	2.404		
User			
Location			
Job Description			
Note			

Measurement			
Description			
Start	2023-11-15 10:27:27		
Stop	2023-11-15 10:42:27		
Duration	00:15:00.0		
Run Time	00:15:00.0		
Pause	00:00:00.0		
Pre-Calibration	2023-11-15 10:23:37		
Post-Calibration	None		
Calibration Deviation	---		

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1L		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Normal		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	A Weighting		
OBA Max Spectrum	At LMax		
Overload	122.7 dB		
	A	C	Z
Under Range Peak	79.2	76.2	81.2 dB
Under Range Limit	25.3	26.0	31.8 dB
Noise Floor	16.2	16.9	22.6 dB
	First	Second	Third
Instrument Identification	Kimley-Horn & Associates, Inc.	1100 W.Town & Country Rd, 700	714.939.1030

Results	
L _{Aeq}	64.2 dB
L _{AE}	93.7 dB
E _A	263.027 μPa ² h

LApk (max)	2023-11-15 10:33:51	89.3 dB				
LASmax	2023-11-15 10:33:51	76.6 dB				
LASmin	2023-11-15 10:35:48	45.5 dB				
SEA	-99.9 dB					
Exceedance Counts						
Duration						
LAS > 85.0 dB	0	0.0 s				
LAS > 115.0 dB	0	0.0 s				
LApk > 135.0 dB	0	0.0 s				
LApk > 137.0 dB	0	0.0 s				
LApk > 140.0 dB	0	0.0 s				
Community Noise	LDN	LDay 07:00-22:00	LNight 22:00-07:00	LDEN	LDay 07:00-19:00	LEvening 19:00-22:00
	64.2	64.2	-99.9	64.2	64.2	-99.9
LCeq	74.0 dB					
LAeq	64.2 dB					
LCeq - LAeq	9.8 dB					
LALeq	65.5 dB					
LAeq	64.2 dB					
LAeq - LAeq	1.3 dB					
		A	C	Z		
dB		Time Stamp	dB	Time Stamp	dB	Time Stamp
Leq	64.2		74.0			
Ls(max)	76.6	2023/11/15 10:33:51				
Ls(min)	45.5	2023/11/15 10:35:48				
Lpk(max)	89.3	2023/11/15 10:33:51				
Overload Count	0					
Overload Duration	0.0 s					
OBA Overload Count	0					
OBA Overload Duration	0.0 s					
Statistics						
LA 5.00	72.4 dB					
LA 10.00	68.2 dB					
LA 33.30	58.6 dB					
LA 50.00	55.5 dB					
LA 66.60	53.5 dB					
LA 90.00	49.8 dB					

Calibration History			
Preamp	Date	dB re. 1V/Pa	
Direct	2019-10-29 12:18:45	-28.39	6.3
PRMLXT1L	2023-11-15 10:23:36	-28.88	8.0
PRMLXT1L	2023-10-19 09:53:09	-28.77	10.0
PRMLXT1L	2023-10-18 08:47:49	-28.76	
PRMLXT1L	2023-10-10 09:33:58	-28.85	
PRMLXT1L	2023-08-31 10:04:48	-28.76	
PRMLXT1L	2023-08-14 09:21:22	-28.80	
PRMLXT1L	2023-08-02 08:47:34	-28.78	
PRMLXT1L	2023-08-02 08:45:53	-28.81	
PRMLXT1L	2023-07-13 12:40:44	-28.75	
PRMLXT1L	2023-07-13 09:51:44	-28.90	
PRMLXT1L	2023-07-13 09:23:44	-28.90	

12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
0.50	3.86	9.51	0.44	-3.11	1.43	6.00	2.05	-3.57	7.95	14.24	0.02	5.29	13.46	6.91	5.51	6.87	6.62	5.46	4.67	7.03	8.87	9.88	11.23	13.40	11.42	40.36	23.45	16.13	16.83	19.76	18.96	19.66
56.62	51.80	54.87	54.89	57.12	51.93	58.58	56.31	54.02	60.98	50.35	44.66	47.31	40.85	37.16	36.02	37.99	30.72	29.53	113.88	48.72	18.91	65.72	20.03	58.83	19.47	27.71	21.35	22.13	23.56	25.22	27.42	30.31
60.05	59.26	51.90	50.02	52.03	48.84	46.55	50.54	47.61	46.89	46.07	45.77	45.37	39.84	35.92	36.51	38.46	31.89	29.71	113.97	49.24	18.70	66.40	18.70	58.20	18.79	27.05	21.17	22.20	23.65	25.46	27.63	30.59
46.30	57.17	55.11	55.89	53.05	53.68	53.49	49.95	48.72	51.85	50.42	45.92	44.31	43.65	44.93	48.98	39.89	33.44	29.04	114.07	49.09	18.68	66.54	19.32	58.34	19.83	27.38	21.02	22.40	23.99	25.67	27.85	30.51
51.16	53.85	49.38	57.60	52.63	59.92	61.16	59.63	57.88	61.60	61.48	60.16	55.35	54.35	50.96	52.97	51.43	38.31	38.40	113.89	48.91	25.20	66.07	19.31	58.70	19.97	27.63	21.27	22.26	23.67	25.43	27.73	30.42
60.54	55.29	55.45	52.03	56.13	51.43	52.86	50.08	46.64	44.05	42.29	40.24	37.71	31.00	27.38	25.45	24.01	16.34	28.63	114.03	49.13	18.74	66.81	19.33	58.08	19.61	27.07	21.34	22.67	24.08	25.72	28.04	30.76
70.08	63.71	67.13	60.17	57.01	58.38	57.73	57.84	53.97	43.98	41.61	39.62	31.13	30.71	31.16	26.66	22.48	18.46	28.88	113.96	49.06	19.58	66.31	19.22	58.61	19.98	27.20	21.45	22.57	24.00	25.60	27.84	30.65
61.95	67.23	63.90	60.11	66.50	67.18	65.63	67.81	58.63	62.44	62.97	59.45	56.82	56.57	49.11	41.87	44.95	39.11	31.91	114.01	49.20	19.78	66.22	20.13	58.78	19.78	27.29	21.19	22.83	23.65	25.47	27.96	30.70
59.06	64.40	63.93	61.00	59.31	57.80	60.57	63.65	73.88	60.21	63.97	56.12	59.45	55.95	51.94	48.19	48.57	41.68	32.21	113.92	49.05	20.13	66.18	19.50	58.69	19.68	27.63	21.29	22.46	23.81	25.75	27.85	30.58
57.78	62.25	60.41	52.04	59.64	56.55	53.66	55.01	52.17	53.95	53.05	57.87	52.77	50.89	49.51	49.22	47.27	41.20	32.67	114.13	49.64	22.14	66.59	19.40	59.22	19.80	28.04	21.49	22.96	24.29	26.12	28.35	30.63
58.55	59.70	61.21	55.40	52.93	54.87	52.65	50.34	53.26	56.31	49.85	55.07	47.59	42.80	42.90	36.42	37.06	30.68	29.45	113.98	49.32	18.75	66.17	19.46	59.00	19.93	27.68	21.66	22.12	23.76	25.78	27.67	30.87
63.74	60.22	56.73	57.65	53.07	53.21	54.90	55.01	51.50	56.50	51.18	46.63	44.37	45.45	40.66	36.44	31.18	28.12	28.93	113.89	49.22	20.28	65.88	19.60	58.94	19.28	27.57	21.28	22.65	23.74	25.74	27.87	30.71

Noise Measurement Field Data

Project:	Inglewood Project	Job Number:	199008001	
Site No.:	ST-2	Date:	9/15/2023	
Analyst:	Ryan Callahan	Time:	10:58 AM	
Location:	Northwest Corner of Woodworth-Monroe property, 104th Street			
Noise Sources:	Children playing, airplanes overhead			
Comments:				
Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	62.5	47.3	75.0	88.1

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	67°F
Wind (mph):	< 5
Sky:	Partly Cloudy
Bar. Pressure:	29.97 inHg
Humidity:	45%

Photo:



Summary

File Name on Meter	Ing.088.s				
File Name on PC	LxT5se_0005586-20231115 10:58:29-Ing.088.ldbin				
Serial Number	0005586				
Model	SoundExpert® LxT				
Firmware Version	2.404				
User					
Location					
Job Description					
Note					
Measurement					
Description					
Start	2023-11-15	10:58:29			
Stop	2023-11-15	11:13:29			
Duration		00:15:00.0			
Run Time		00:15:00.0			
Pause		00:00:00.0			
Pre-Calibration	2023-11-15	10:23:36			
Post-Calibration		None			
Calibration Deviation		---			
Overall Settings					
RMS Weight	A Weighting				
Peak Weight	A Weighting				
Detector	Slow				
Preamplifier	PRMLxT1L				
Microphone Correction	Off				
Integration Method	Linear				
OBA Range	Normal				
OBA Bandwidth	1/1 and 1/3				
OBA Frequency Weighting	A Weighting				
OBA Max Spectrum	At LMax				
Overload	122.7 dB				
	A	C	Z		
Under Range Peak	79.2	76.2	81.2 dB		
Under Range Limit	25.3	26.0	31.8 dB		
Noise Floor	16.2	16.9	22.6 dB		
	First	Second	Third		
Instrument Identification	Kimley-Horn & Associates, Inc.	1100 W.Town & Country Rd, 700	714.939.1030		
Results					
L _{Aeq}	62.5 dB				
L _{AE}	92.0 dB				
E _A	177.828 µPa²h				

LApk (max)	2023-11-15 11:01:46	88.1 dB
LASmax	2023-11-15 11:12:58	75.0 dB
LASmin	2023-11-15 11:07:59	47.3 dB
SEA	-77.3 dB	
	Exceedance Counts	Duration
LAS > 85.0 dB	0	0.0 s
LAS > 115.0 dB	0	0.0 s
LApk > 135.0 dB	0	0.0 s
LApk > 137.0 dB	0	0.0 s
LApk > 140.0 dB	0	0.0 s
Community Noise	LDN	LDay 07:00-22:00
	62.5	62.5
		LNight 22:00-07:00
		62.5
		LDEN
		62.5
		LDay 07:00-19:00
		62.5
		LEvening 19:00-22:00
		62.5
		LNight 22:00-07:00
		62.5
LCeq	71.8 dB	
LAeq	62.5 dB	
LCeq - LAeq	9.3 dB	
LAeq	63.8 dB	
LAeq	62.5 dB	
LAeq - LAeq	1.3 dB	
	A	C
	dB	dB
	Time Stamp	Time Stamp
Leq	62.5	71.8
Lq(max)	75.0	
Lq(min)	47.3	
Lq(max)	88.1	
Overload Count	0	
Overload Duration	0.0 s	
OBA Overload Count	0	
OBA Overload Duration	0.0 s	
Statistics		
LA 5.00	70.3 dB	
LA 10.00	68.0 dB	
LA 33.30	55.1 dB	
LA 50.00	52.7 dB	
LA 66.60	50.6 dB	
LA 90.00	48.8 dB	

Calibration History			
Preamp	Date	dB re. 1V/Pa	6.3
Direct	2019-10-29 12:18:45	-28.39	8.0
PRMLXT1L	2023-11-15 10:23:36	-28.88	10.0
PRMLXT1L	2023-10-19 09:53:09	-28.77	2.58
PRMLXT1L	2023-10-18 08:47:49	-28.76	5.73
PRMLXT1L	2023-10-10 09:33:58	-28.85	55.78
PRMLXT1L	2023-08-31 10:04:48	-28.76	60.66
PRMLXT1L	2023-08-14 09:21:22	-28.80	66.81
PRMLXT1L	2023-08-02 08:47:34	-28.78	60.24
PRMLXT1L	2023-08-02 08:45:53	-28.81	58.27
PRMLXT1L	2023-07-13 12:40:44	-28.75	61.03
PRMLXT1L	2023-07-13 09:51:44	-28.90	71.99
PRMLXT1L	2023-07-13 09:23:44	-28.90	60.72

12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
0.50	3.86	9.51	0.44	-3.11	1.43	6.00	2.05	-3.57	7.95	14.24	0.02	5.29	13.46	6.91	5.51	6.87	6.62	5.46	4.67	7.03	8.87	9.88	11.23	13.40	11.42	40.36	23.45	16.13	16.83	19.76	18.96	19.66
56.62	51.80	54.87	54.89	57.12	51.93	58.58	56.31	54.02	60.98	50.35	44.66	47.31	40.85	37.16	36.02	37.99	30.72	29.53	113.88	48.72	18.91	65.72	20.03	58.83	19.47	27.71	21.35	22.13	23.56	25.22	27.42	30.31
60.05	59.26	51.90	50.02	52.03	48.84	46.55	50.54	47.61	46.89	46.07	45.77	45.37	39.84	35.92	36.51	38.46	31.89	29.71	113.97	49.24	18.70	66.40	18.70	58.20	18.79	27.05	21.17	22.20	23.65	25.46	27.63	30.59
46.30	57.17	55.11	55.89	53.05	53.68	53.49	49.95	48.72	51.85	50.42	45.92	44.31	43.65	44.93	48.98	39.89	33.44	29.04	114.07	49.09	18.68	66.54	19.32	58.34	19.83	27.38	21.02	22.40	23.99	25.67	27.85	30.51
51.16	53.85	49.38	57.60	52.63	59.92	61.16	59.63	57.88	61.60	61.48	60.16	55.35	54.35	50.96	52.97	51.43	38.31	38.40	113.89	48.91	25.20	66.07	19.31	58.70	19.97	27.63	21.27	22.26	23.67	25.43	27.73	30.42
60.54	55.29	55.45	52.03	56.13	51.43	52.86	50.08	46.64	44.05	42.29	40.24	37.71	31.00	27.38	25.45	24.01	16.34	28.63	114.03	49.13	18.74	66.81	19.33	58.08	19.61	27.07	21.34	22.67	24.08	25.72	28.04	30.76
70.08	63.71	67.13	60.17	57.01	58.38	57.73	57.84	53.97	43.98	41.61	39.62	31.13	30.71	31.16	26.66	22.48	18.46	28.88	113.96	49.06	19.58	66.31	19.22	58.61	19.98	27.20	21.45	22.57	24.00	25.60	27.84	30.65
61.95	67.23	63.90	60.11	66.50	67.18	65.63	67.81	58.63	62.44	62.97	59.45	56.82	56.57	49.11	41.87	44.95	39.11	31.91	114.01	49.20	19.78	66.22	20.13	58.78	19.78	27.29	21.19	22.83	23.65	25.47	27.96	30.70
59.06	64.40	63.93	61.00	59.31	57.80	60.57	63.65	73.88	60.21	63.97	56.12	59.45	55.95	51.94	48.19	48.57	41.68	32.21	113.92	49.05	20.13	66.18	19.50	58.69	19.68	27.63	21.29	22.46	23.81	25.75	27.85	30.58
57.78	62.25	60.41	52.04	59.64	56.55	53.66	55.01	52.17	53.95	53.05	57.87	52.77	50.89	49.51	49.22	47.27	41.20	32.67	114.13	49.64	22.14	66.59	19.40	59.22	19.80	28.04	21.49	22.96	24.29	26.12	28.35	30.63
58.55	59.70	61.21	55.40	52.93	54.87	52.65	50.34	53.26	56.31	49.85	55.07	47.59	42.80	42.90	36.42	37.06	30.68	29.45	113.98	49.32	18.75	66.17	19.46	59.00	19.93	27.68	21.66	22.12	23.76	25.78	27.67	30.87
63.74	60.22	56.73	57.65	53.07	53.21	54.90	55.01	51.50	56.50	51.18	46.63	44.37	45.45	40.66	36.44	31.18	28.12	28.93	113.89	49.22	20.28	65.88	19.60	58.94	19.28	27.57	21.28	22.65	23.74	25.74	27.87	30.71

Noise Measurement Field Data

Project:	Inglewood Project	Job Number:	199008001	
Site No.:	ST-3	Date:	9/15/2023	
Analyst:	Ryan Callahan	Time:	11:27 AM	
Location:	Edge of property line at South Lemon Avenue			
Noise Sources:	Birds, children playing, light vehicle activity, airplanes overhead			
Comments:				
Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	64.4	47.2	78.0	91.1

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	67°F
Wind (mph):	< 5
Sky:	Partly Cloudy
Bar. Pressure:	29.97 inHg
Humidity:	45%

Photo:



Summary				
File Name on Meter	Ing.089.s			
File Name on PC	LxTse_0005586-20231115 11:27:50-Ing.089.ldbin			
Serial Number	0005586			
Model	SoundExpert® LxT			
Firmware Version	2.404			
User				
Location				
Job Description				
Note				
Measurement				
Description				
Start	2023-11-15	11:27:50		
Stop	2023-11-15	11:42:50		
Duration	00:15:00.0			
Run Time	00:15:00.0			
Pause	00:00:00.0			
Pre-Calibration	2023-11-15	10:23:36		
Post-Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamplifier	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Normal			
OBA Bandwidth	1/1 and 1/3			
OBA Frequency Weighting	A Weighting			
OBA Max Spectrum	At LMax			
Overload	122.7 dB			
	A	C	Z	
Under Range Peak	79.2	76.2	81.2 dB	
Under Range Limit	25.3	26.0	31.8 dB	
Noise Floor	16.2	16.9	22.6 dB	
	First	Second	Third	
Instrument Identification	Kimley-Horn & Associates, Inc.	1100 W.Town & Country Rd, 700	714.939.1030	
Results				
L _{Aeq}	64.4 dB			
L _{AE}	93.9 dB			
E _A	275.423 μPa²h			

Noise Measurement Field Data

Project:	Inglewood Project	Job Number:	199008001
Site No.:	ST-4	Date:	9/15/2023
Analyst:	Ryan Callahan	Time:	11:59 AM
Location:	Southwest corner of Morningside Highschool property. 308 meters, Yukon		
Noise Sources:	Traffic on Yukon, airplanes overhead		
Comments:			

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
66.4	47.7	79.1	110.6

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	70°F
Wind (mph):	< 5
Sky:	Partly Cloudy
Bar. Pressure:	29.95 inHg
Humidity:	43%

Photo:



Summary				
File Name on Meter	Ing.090.s			
File Name on PC	LxTse_0005586-20231115 115904-Ing.090.ldbin			
Serial Number	0005586			
Model	SoundExpert® LxT			
Firmware Version	2.404			
User				
Location				
Job Description				
Note				
Measurement				
Description				
Start	2023-11-15	11:59:04		
Stop	2023-11-15	12:14:04		
Duration		00:15:00.0		
Run Time		00:15:00.0		
Pause		00:00:00.0		
Pre-Calibration	2023-11-15	10:23:36		
Post-Calibration		None		
Calibration Deviation		---		
Overall Settings				
RMS Weight		A Weighting		
Peak Weight		A Weighting		
Detector		Slow		
Preamplifier		PRMLxT3L		
Microphone Correction		Off		
Integration Method		Linear		
OBA Range		Normal		
OBA Bandwidth		1/1 and 1/3		
OBA Frequency Weighting		A Weighting		
OBA Max Spectrum		At LMax		
Overload		122.7 dB		
		A	C	Z
Under Range Peak		79.2	76.2	81.2 dB
Under Range Limit		25.3	26.0	31.8 dB
Noise Floor		16.2	16.9	22.6 dB
		First	Second	Third
Instrument Identification	Kimley-Horn & Associates, Inc.	1100 W.Town & Country Rd, 700	714.939.1030	
Results				
L _{Aeq}		66.4 dB		
L _A E		95.9 dB		
E _A		436.516 µPa²h		

LApk (max)	2023-11-15 11:59:06	110.6 dB
LASmax	2023-11-15 12:06:45	79.1 dB
LASmin	2023-11-15 11:59:56	47.1 dB
SEA	-99.9 dB	
Exceedance Counts		Duration
LAS > 85.0 dB	0	0.0 s
LAS > 115.0 dB	0	0.0 s
LApk > 135.0 dB	0	0.0 s
LApk > 137.0 dB	0	0.0 s
LApk > 140.0 dB	0	0.0 s
Community Noise	LDN	LDay 07:00-22:00
	66.4	66.4
		LNight 22:00-07:00
		-99.9
		LDEN
		66.4
		LEvening 19:00-22:00
		-99.9
LCeq	74.2 dB	
LAeq	66.4 dB	
LCeq - LAeq	7.8 dB	
LALeq	69.3 dB	
LAeq	66.4 dB	
LAeq - LAeq	2.9 dB	
A		C
	dB	dB
	Time Stamp	Time Stamp
	66.4	74.2
Leq	66.4	
Ls(max)	79.1 2023/11/15 12:06:45	
Ls(min)	47.7 2023/11/15 11:59:56	
Lpk(max)	110.6 2023/11/15 11:59:06	
Overload Count	0	
Overload Duration	0.0 s	
OBA Overload Count	0	
OBA Overload Duration	0.0 s	
Statistics		
LA 5.00	73.8 dB	
LA 10.00	70.8 dB	
LA 33.30	64.0 dB	
LA 50.00	60.7 dB	
LA 66.60	56.0 dB	
LA 90.00	51.0 dB	

Calibration History			
Preamp	Date	dB re. 1V/Pa	6.3
Direct	2019-10-29 12:18:45	-28.39	8.0
PRMLXT1L	2023-11-15 10:23:36	-28.88	10.0
PRMLXT1L	2023-10-19 09:53:09	-28.77	0.93
PRMLXT1L	2023-10-18 08:47:49	-28.76	59.78
PRMLXT1L	2023-10-31 09:33:58	-28.85	63.35
PRMLXT1L	2023-08-14 09:21:22	-28.80	59.80
PRMLXT1L	2023-08-02 08:47:34	-28.78	57.10
PRMLXT1L	2023-08-02 08:45:53	-28.81	60.66
PRMLXT1L	2023-07-13 12:40:44	-28.75	66.81
PRMLXT1L	2023-07-13 09:51:44	-28.90	60.24
PRMLXT1L	2023-07-13 09:23:44	-28.90	61.98
			57.52
			64.53
			54.24
			62.26
			55.31
			58.62
			59.50

12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
0.50	3.86	9.51	0.44	-3.11	1.43	6.00	2.05	-3.57	7.95	14.24	0.02	5.29	13.46	6.91	5.51	6.87	6.62	5.46	4.67	7.03	8.87	9.88	11.23	13.40	11.42	40.36	23.45	16.13	16.83
56.62	51.80	54.87	54.89	57.12	51.93	58.58	56.31	54.02	60.98	50.35	44.66	47.31	40.85	37.16	36.02	37.99	30.72	29.53	113.88	48.72	18.91	65.72	20.03	58.83	19.47	27.71	21.35	22.13	23.56
60.05	59.26	51.90	50.02	52.03	48.84	46.55	50.54	47.61	46.89	46.07	45.77	45.37	39.84	35.92	36.51	38.46	31.89	29.71	113.97	49.24	18.70	66.40	18.70	58.20	18.79	27.05	21.17	22.20	23.65
46.30	57.17	55.11	55.89	53.05	53.68	53.49	49.95	48.72	51.85	50.42	45.92	44.31	43.65	44.93	48.98	39.89	33.44	29.04	114.07	49.09	18.68	66.54	19.32	58.34	19.83	27.38	21.02	22.40	23.99
51.16	53.85	49.38	57.60	52.63	59.92	61.16	59.63	57.88	61.60	61.48	60.16	55.35	54.35	50.96	52.97	51.43	38.31	38.40	113.89	48.91	25.20	66.07	19.31	58.70	19.97	27.63	21.27	22.26	23.67
60.54	55.29	55.45	52.03	56.13	51.43	52.86	50.08	46.64	44.05	42.29	40.24	37.71	31.00	27.38	25.45	24.01	16.34	28.63	114.03	49.13	18.74	66.81	19.33	58.08	19.61	27.07	21.34	22.67	24.08
70.08	63.71	67.13	60.17	57.01	58.38	57.73	57.84	53.97	43.98	41.61	39.62	31.13	30.71	31.16	26.66	22.48	18.46	28.88	113.96	49.06	19.58	66.31	19.22	58.61	19.98	27.20	21.45	22.57	24.00
61.95	67.23	63.90	60.11	66.50	67.18	65.63	67.81	58.63	62.44	62.97	59.45	56.82	56.57	49.11	41.87	44.95	39.11	31.91	114.01	49.20	19.78	66.22	20.13	58.78	19.78	27.29	21.19	22.83	23.65
59.06	64.40	63.93	61.00	59.31	57.80	60.57	63.65	73.88	60.21	63.97	56.12	59.45	55.95	51.94	48.19	48.57	41.68	32.21	113.92	49.05	20.13	66.18	19.50	58.69	19.68	27.63	21.29	22.46	23.81
57.78	62.25	60.41	52.04	59.64	56.55	53.66	55.01	52.17	53.95	53.05	57.87	52.77	50.89	49.51	49.22	47.27	41.20	32.67	114.13	49.64	22.14	66.59	19.40	59.22	19.80	28.04	21.49	22.96	24.29
58.55	59.70	61.21	55.40	52.93	54.87	52.65	50.34	53.26	56.31	49.85	55.07	47.59	42.80	42.90	36.42	37.06	30.68	29.45	113.98	49.32	18.75	66.17	19.46	59.00	19.93	27.68	21.66	22.12	23.76
63.74	60.22	56.73	57.65	53.07	53.21	54.90	55.01	51.50	56.50	51.18	46.63	44.37	45.45	40.66	36.44	31.18	28.12	28.93	113.89	49.22	20.28	65.88	19.60	58.94	19.28	27.57	21.28	22.65	23.74

Project: Inglewood Residential with PDF
Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	Daytime hours (7 am to 7 pm)	8
	Evening hours (7 pm to 10 pm)	0
	Nighttime hours (10 pm to 7 am)	0
Leq to L10 factor		3

	Receptor (Land Use)	Average Distance (feet)	Distance to Property Line (feet)	Shielding	Direction
1	School West	50	25		10 N
2	Residences North	50	50		10 S
3	School East	25	25		10 E
4	Residences South	25	25		10 W
5	Future School East	25	25		10 E

Construction Phase	Equipment Type	No. of Equip.	Acoustical Usage Factor	Reference Noise Level at 50ft per Unit, Lmax
Demolition	Concrete Saw	1	20%	90
	Tractor	1	40%	84
	Tractor	1	40%	84
	Dozer	1	40%	82
	Combined LEQ			
Site Prep	Tractor	1	40%	84
	Tractor	1	40%	84
	Tractor	1	40%	84
	Tractor	1	40%	84
	Dozer	3	40%	82
Grading	Grader	1	40%	85
	Tractor	1	40%	84
	Tractor	1	40%	84
	Scraper	2	40%	84
	Dozer	1	40%	82
Infrastructure Improvements	Excavator	2	40%	81
	Combined LEQ			
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
Paving	Tractor	1	40%	84
	Tractor	2	40%	84
	Generator	1	50%	81
	Crane	1	16%	81
	Welder/Torch	1	40%	74
Phase 1 Building Construction	Combined LEQ			
	All Other Equipment > 5 HP	3	50%	85
	Tractor	3	40%	84
	Generator	1	50%	81
	Crane	1	16%	81
Phase 1 Architectural Coating	Welder/Torch	1	40%	74
	Combined LEQ			
	Compressor (air)	1	40%	78
	Combined LEQ			
Phase 2 Building Construction	Compressor (air)	1	40%	78
	Combined LEQ			
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
Phase 2 Architectural Coating	Tractor	3	40%	84
	Generator	1	50%	81
	Crane	1	16%	81
	Welder/Torch	1	40%	74
Phase 3 Building Construction	Combined LEQ			
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	Tractor	3	40%	84
Phase 3 Architectural Coating	Generator	1	50%	81
	Crane	1	16%	81
	Welder/Torch	1	40%	74
	Combined LEQ			
Phase 4 Building Construction	Compressor (air)	1	40%	78
	Combined LEQ			
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
Phase 4 Architectural Coating	Tractor	3	40%	84
	Generator	1	50%	81
	Crane	1	16%	81
	Welder/Torch	1	40%	74
Phase 5 Building Construction	Combined LEQ			
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	Tractor	1	40%	84
	Generator	1	50%	81
Phase 5 Architectural Coating	Crane	1	16%	81
	Compressor (air)	1	40%	78
	Welder/Torch	3	40%	74
	Combined LEQ			
Overlapping Phases	Compressor (air)	1	40%	78
	Combined LEQ			
	P1 BC + P1 AC + P2 BC			
	P2 BC + P2 AC + P3 BC			
	P3 BC + P3 AC + P4 BC			
Maximum Noise Level	P4 BC + P4 AC + P5 BC			
	Maximum Noise Level			

Source for Ref. Noise Levels: RCNM, 2005

RECEPTOR 1			RECEPTOR 2			RECEPTOR 3			RECEPTOR 4			RECEPTOR		
Distance (feet)	Noise Level at Receptor 1, Lmax	Noise Level at Receptor 1, Leq	Distance (feet)	Noise Level at Receptor 2, Lmax	Noise Level at Receptor 2, Leq	Distance (feet)	Noise Level at Receptor 3, Lmax	Noise Level at Receptor 3, Leq	Distance (feet)	Noise Level at Receptor 4, Lmax	Noise Level at Receptor 4, Leq	Distance (feet)	Noise Level at Receptor 4, Lmax	Noise Level at Receptor 4, Leq
25	85.6	78.6	50.0	79.6	72.6	25.0	85.6	78.6	25.0	85.6	78.6	25.0	85.6	78.6
125	66.0	62.1	150.0	64.5	60.5	125.0	66.0	62.1	125.0	66.0	62.1	125.0	66.0	62.1
125	66.0	62.1	150.0	64.5	60.5	125.0	66.0	62.1	125.0	66.0	62.1	125.0	66.0	62.1
225	58.6	54.7	250.0	57.7	53.7	225.0	58.6	54.7	225.0	58.6	54.7	225.0	58.6	54.7
		78.8			73.2			78.8			65.4			65.4
25	80.0	76.0	50.0	74.0	70.0	25.0	80.0	76.0	25.0	80.0	76.0	25.0	80.0	76.0
125	66.0	62.1	150.0	64.5	60.5	125.0	66.0	62.1	125.0	66.0	62.1	125.0	66.0	62.1
125	66.0	62.1	150.0	64.5	60.5	125.0	66.0	62.1	125.0	66.0	62.1	125.0	66.0	62.1
225	60.9	57.0	250.0	60.0	56.0	225.0	60.9	57.0	225.0	60.9	57.0	225.0	60.9	57.0
225	63.4	59.4	250.0	62.5	58.5	225.0	63.4	59.4	225.0	63.4	59.4	225.0	63.4	59.4
		76.5			71.3			76.5			76.5			76.5
25	81.0	77.0	50.0	75.0	71.0	25.0	81.0	77.0	25.0	81.0	77.0	25.0	81.0	77.0
125	66.0	62.1	150.0	64.5	60.5	125.0	66.0	62.1	125.0	66.0	62.1	125.0	66.0	62.1
125	66.0	62.1	150.0	64.5	60.5	125.0	66.0	62.1	125.0	66.0	62.1	125.0	66.0	62.1
225	63.5	59.6	250.0	62.6	58.7	225.0	63.5	59.6	225.0	63.5	59.6	225.0	63.5	59.6
225	58.6	54.7	250.0	57.7	53.7	225.0	58.6	54.7	225.0	58.6	54.7	225.0	58.6	54.7
225	60.6	56.7	250.0	59.7	55.8	225.0	60.6	56.7	225.0	60.6	56.7	225.0	60.6	56.7
		77.4			72.1			77.4			77.4			77.4
25	81.0	78.0	50.0	75.0	72.0	25.0	81.0	78.0	25.0	81.0	78.0	25.0	81.0	78.0
125	67.0	64.0	150.0	65.5	62.4	125.0	67.0	64.0	125.0	67.0	64.0	125.0	67.0	64.0
125	67.0	64.0	150.0	65.5	62.4	125.0	67.0	64.0	125.0	67.0	64.0	125.0	67.0	64.0
125	66.0	62.1	150.0	64.5	60.5	125.0	66.0	62.1	125.0	66.0	62.1	125.0	66.0	62.1
225	63.9	60.0	250.0	63.0	59.1	225.0	63.9	60.0	225.0	63.9	60.0	225.0	63.9	60.0
225	57.5	54.5	250.0	56.6	53.6	225.0	57.5	54.5	225.0	57.5	54.5	225.0	57.5	54.5
225	57.5	49.6	250.0	56.6	48.7	225.0	57.5	49.6	225.0	57.5	49.6	225.0	57.5	49.6
225	50.9	47.0	250.0	50.0	46.0	225.0	50.9	47.0	225.0	50.9	47.0	225.0	50.9	47.0
		78.5			73.3			78.5			78.5			78.5
25	81.0	78.0	50.0	75.0	72.0	25.0	81.0	78.0	25.0	81.0	78.0	25.0	81.0	78.0
125	67.0	64.0	150.0	65.5	62.4	125.0	67.0	64.0	125.0	67.0	64.0	125.0	67.0	64.0
125	62.0	55.1	150.0	60.5	53.5	125.0	62.0	55.1	125.0	62.0	55.1	125.0	62.0	55.1
225	56.9	49.9	250.0	56.0	49.0	225.0	56.9	49.9	225.0	56.9	49.9	225.0	56.9	49.9
225	57.1	54.1	250.0	56.2	53.2	225.0	57.1	54.1	225.0	57.1	54.1	225.0	57.1	54.1
		78.2			72.6			78.2			78.2			78.2
25	85.8	82.8	50.0	79.8	76.8	140.0	70.8	67.8	730.0	56.5	53.5	700.0	56.5	53.5
125	70.8	66.8	150.0	69.2	65.2	240.0	65.1	61.2	830.0	54.4	50.4	800.0	54.4	50.4
125	62.6	59.6	150.0	61.1	58.0	240.0	57.0	54.0	830.0	46.2	43.2	800.0	46.2	43.2
225	57.5	49.6	250.0	56.6	48.7	340.0	53.9	46.0	930.0	45.2	37.3	900.0	45.2	37.3
225	50.9	47.0	250.0	50.0	46.0	340.0	47.3	43.4	930.0	38.6	34.6	900.0	38.6	34.6
		82.9			77.1			68.8			55.6			55.6
25	73.7	69.7	50.0	67.7	63.7	140.0	58.8	54.8	730.0	44.4	40.4	700.0	44.4	40.4
		69.7			63.7			54.8			40.4			40.4
25	81.0	78.0	50.0	75.0	72.0	25.0	81.0	78.0	375.0	57.5	54.5	580.0	57.5	54.5
125	67.0	64.0	150.0	65.5	62.4	125.0	67.0	64.0	475.0	55.4	52.4	680.0	55.4	52.4
125	67.0	64.0	150.0	65.5	62.4	125.0	67.0	64.0	475.0	55.4	52.4	680.0	55.4	52.4
125	70.8	66.8	150.0	69.2	65.2	125.0	70.8	66.8	475.0	59.2	55.2	680.0	59.2	55.2
225	57.5	54.5	250.0	56.6	53.6	225.0	57.5	54.5	575.0	49.4	46.4	780.0	49.4	46.4
225	57.5	49.6	250.0	56.6	48.7	225.0	57.5	49.6	575.0	49.4	41.4	780.0	49.4	41.4
225	50.9	47.0	250.0	50.0	46.0	225.0	50.9	47.0	575.0	42.8	38.8	780.0	42.8	38.8
		78.7			73.6			78.7			60.1			60.1
25	73.7	69.7	50.0	67.7	63.7	25.0	73.7	69.7	375.0	50.2	46.2	580.0	50.2	46.2
		69.7			63.7			69.7			46.2			46.2
270	60.4	57.3	50.0	75.0	72.0	25.0	81.0	78.0	25.0	81.0	78.0	780.0	81.0	78.0
370	57.6	54.6	150.0	65.5	62.4	125.0	67.0	64.0	125.0	67.0	64.0	880.0	67.0	64.0
370	57.6	54.6	150.0	65.5	62.4	125.0	67.0	64.0	125.0	67.0	64.0	880.0	67.0	64.0
370	61.4	57.4	150.0	69.2	65.2	125.0	70.8	66.8	125.0	70.8	66.8	880.0	70.8	66.8
540	49.9	46.9	250.0	56.6	53.6	225.0	57.5	54.5	225.0	57.5	54.5	980.0	57.5	54.5
540	49.9	42.0	250.0	56.6	48.7	225.0	57.5	49.6	225.0	57.5	49.6	980.0	57.5	49.6
540	43.3	39.4	250.0	50.0	46.0	225.0	50.9	47.0	225.0	50.9	47.0	980.0	50.9	47.0
		62.4			73.6			78.7			78.7			78.7
270	53.1	49.1	50.0	67.7	63.7	25.0	73.7	69.7	25.0	73.7	69.7	780.0	73.7	69.7
		49.1			63.7			69.7			69.7			69.7
430	56.3	53.3	600.0	53.4	50.4	25.0	81.0	78.0	775.0	51.2	48.2	230.0	51.2	48.2
530	54.5	51.5	700.0	52.1	49.1	125.0	67.0	64.0	875.0	50.1	47.1	330.0	50.1	47.1
530	54.5	51.5	700.0	52.1	49.1	125.0	67.0	64.0	875.0	50.1	47.1	330.0	50.1	47.1
530	58.3	54.3	700.0	55.8	51.9	125.0	70.8	66.8	875.0	53.9	49.9	330.0	53.9	49.9
650	48.3	45.3	800.0	46.5	43.5	225.0	57.5	54.5	975.0	44.8	41.8	430.0	44.8	41.8
650	48.3	40.4	800.0	46.5	38.6	225.0	57.5	49.6	975.0	44.8	36.8	430.0	44.8	36.8
650	41.7	37.7	800.0	39.9	35.9	225.0	50.9	47.0	975.0	38.2	34.2	430.0	38.2	34.2
		59.1			56.6			78.7			54.6			54.6
430	49.0	45.0	600.0	46.1	42.1	25.0	73.7	69.7	775.0	43.9	39.9	230.0	43.9	39.9
		45.0			42.1			69.7			39.9			39.9
930	49.6	46.6	970.0	49.2	46.2	25.0	81.0	78.0	775.0	51.2	48.2	25.0	51.2	48.2
1,030	48.7	45.7	1070.0	48.4	45.4	125.0	67.0	64.0	875.0	50.1	47.1	125.0	50.1	47.1
1,030	47.7	43.7	1070.0	47.4	43.4	125.0	66.0	62.1	875.0	49.1	45.2	125.0	49.1	45.2
1,030	44.3	41.3	1070.0	44.0	41.0	125.0	62.6	59.6	875.0	45.7	42.7	125.0	45.7	42.7
1,130	43.5	35.6	1170.0	43.2	35.3	225.0	57.5	49.6	975.0	44.8	36.8	225.0	44.8	36.8
1,130	40.6	36.6	1170.0	40.3	36.3	225.0	54.6	50.7	975.0	41.9	37.9	225.0	41.9	37.9
1,130	41.7	37.7	1170.0	41.4	37.4	225.0	55.7	51.7	975.0	43.0	39.0	225.0	43.0	39.0
		51.3			50.9			78.4			52.7			52.7
930	42.3	38.3	970.0	41.9	38.0	25.0	73.7	69.7	775.0	43.9	39.9	25.0	43.9	39.9
		38.3			38.0			69.7			39.9			39.9
	84.4				78.9			79.1		61.5				61.5
	79.3				76.8			81.9		78.7				78.7
	64.2				74.1			81.9		79.2				79.2
	59.9				57.8			81.8		56.9				56.9
	84.4				78.9			81.9		79.2				79.2

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Construction Noise Impact on Sensitive Receptors

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Site Prep	Tractor	1	40%	84
	Tractor	1	40%	84
	Tractor	1	40%	84
	Tractor	1	40%	84
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	Tractor	1	40%	84
	Tractor	1	40%	84
	Scraper	2	40%	84
	Dozer	1	40%	82
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	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	Tractor	1	40%	84
Paving	Tractor	2	40%	84
	Generator	1	50%	81
	Crane	1	16%	81
	Welder/Torch	1	16%	81
	Combined LEQ	1	40%	74
Phase 1 Building Construction	All Other Equipment > 5 HP	1	50%	85
	Tractor	1	50%	85
	Generator	1	50%	85
	Crane	1	16%	81
	Welder/Torch	1	16%	81
Phase 1 Architectural Coating	Compressor (air)	1	40%	78
	Combined LEQ			
Phase 2 Building Construction	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	Tractor	3	40%	84
	Generator	1	50%	81
Phase 2 Architectural Coating	Crane	1	16%	81
	Welder/Torch	1	16%	81
	Combined LEQ	1	40%	74
Phase 3 Building Construction	Compressor (air)	1	40%	78
	Combined LEQ			
Phase 3 Architectural Coating	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
Phase 4 Building Construction	Tractor	3	40%	84
	Generator	1	50%	81
	Crane	1	16%	81
	Welder/Torch	1	16%	81
Phase 4 Architectural Coating	Compressor (air)	1	40%	78
	Combined LEQ			
Phase 5 Building Construction	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	All Other Equipment > 5 HP	1	50%	85
	Tractor	3	40%	84
	Generator	1	50%	81
Phase 5 Architectural Coating	Crane	1	16%	81
	Compressor (air)	1	40%	78
	Welder/Torch	3	40%	74
	Combined LEQ			
Overlapping Phases	Compressor (air)	1	40%	78
	Combined LEQ			
	P1 BC + P1 AC + P2 BC			
	P2 BC + P2 AC + P3 BC			
	P3 BC + P3 AC + P4 BC			
Maximum Noise Level	P4 BC + P4 AC + P5 BC			
	Maximum Noise Level			
	Source for Ref. Noise Levels: RCNM, 2005			
	* source for any user defined equipment/data			

RECEPTOR 1			RECEPTOR 2			RECEPTOR 3			RECEPTOR 4			RECEPTOR 5		
Distance (feet)	Noise Level at Receptor 1, Lmax	Noise Level at Receptor 1, Leq	Distance (feet)	Noise Level at Receptor 2, Lmax	Noise Level at Receptor 2, Leq	Distance (feet)	Noise Level at Receptor 3, Lmax	Noise Level at Receptor 3, Leq	Distance (feet)	Noise Level at Receptor 4, Lmax	Noise Level at Receptor 4, Leq	Distance (feet)	Noise Level at Receptor 4, Lmax	Noise Level at Receptor 4, Leq
25	78.6	71.6	50.0	72.6	65.6	25.0	78.6	71.6	25.0	78.6	71.6	25.0	78.6	71.6
125	59.0	55.1	150.0	57.5	53.5	125.0	59.0	55.1	125.0	59.0	55.1	125.0	59.0	55.1
125	59.0	55.1	150.0	57.5	53.5	125.0	59.0	55.1	125.0	59.0	55.1	125.0	59.0	55.1
225	51.6	47.7	250.0	50.7	46.7	225.0	51.6	47.7	225.0	51.6	47.7	225.0	51.6	47.7
		71.8			66.2			71.8			58.5			58.5
25	73.0	69.0	50.0	67.0	63.0	25.0	73.0	69.0	25.0	73.0	69.0	25.0	73.0	69.0
125	59.0	55.1	150.0	57.5	53.5	125.0	59.0	55.1	125.0	59.0	55.1	125.0	59.0	55.1
125	59.0	55.1	150.0	57.5	53.5	125.0	59.0	55.1	125.0	59.0	55.1	125.0	59.0	55.1
225	53.9	50.0	250.0	53.0	49.0	225.0	53.9	50.0	225.0	53.9	50.0	225.0	53.9	50.0
225	56.4	52.4	250.0	55.5	51.5	225.0	56.4	52.4	225.0	56.4	52.4	225.0	56.4	52.4
		69.5			64.3			69.5			69.5			69.5
25	74.0	70.0	50.0	68.0	64.0	25.0	74.0	70.0	25.0	74.0	70.0	25.0	74.0	70.0
125	59.0	55.1	150.0	57.5	53.5	125.0	59.0	55.1	125.0	59.0	55.1	125.0	59.0	55.1
125	59.0	55.1	150.0	57.5	53.5	125.0	59.0	55.1	125.0	59.0	55.1	125.0	59.0	55.1
225	56.5	52.6	250.0	55.6	51.7	225.0	56.5	52.6	225.0	56.5	52.6	225.0	56.5	52.6
225	51.6	47.7	250.0	50.7	46.7	225.0	51.6	47.7	225.0	51.6	47.7	225.0	51.6	47.7
225	53.6	49.7	250.0	52.7	48.8	225.0	53.6	49.7	225.0	53.6	49.7	225.0	53.6	49.7
		70.4			65.1			70.4			70.4			70.4
25	74.0	71.0	50.0	68.0	65.0	25.0	74.0	71.0	25.0	74.0	71.0	25.0	74.0	71.0
125	60.0	57.0	150.0	58.5	55.4	125.0	60.0	57.0	125.0	60.0	57.0	125.0	60.0	57.0
125	60.0	57.0	150.0	58.5	55.4	125.0	60.0	57.0	125.0	60.0	57.0	125.0	60.0	57.0
125	59.0	55.1	150.0	57.5	53.5	125.0	59.0	55.1	125.0	59.0	55.1	125.0	59.0	55.1
225	56.9	53.0	250.0	56.0	52.1	225.0	56.9	53.0	225.0	56.9	53.0	225.0	56.9	53.0
225	50.5	47.5	250.0	49.6	46.6	225.0	50.5	47.5	225.0	50.5	47.5	225.0	50.5	47.5
225	50.5	42.6	250.0	49.6	41.7	225.0	50.5	42.6	225.0	50.5	42.6	225.0	50.5	42.6
225	43.9	40.0	250.0	43.0	39.0	225.0	43.9	40.0	225.0	43.9	40.0	225.0	43.9	40.0
		71.5			66.3			71.5			71.5			71.5
25	74.0	71.0	50.0	68.0	65.0	25.0	74.0	71.0	25.0	74.0	71.0	25.0	74.0	71.0
125	60.0	57.0	150.0	58.5	55.4	125.0	60.0	57.0	125.0	60.0	57.0	125.0	60.0	57.0
125	55.0	48.1	150.0	53.5	46.5	125.0	55.0	48.1	125.0	55.0	48.1	125.0	55.0	48.1
225	49.9	42.9	250.0	49.0	42.0	225.0	49.9	42.9	225.0	49.9	42.9	225.0	49.9	42.9
225	50.1	47.1	250.0	49.2	46.2	225.0	50.1	47.1	225.0	50.1	47.1	225.0	50.1	47.1
		71.2			65.6			71.2			71.2			71.2
25	78.8	75.8	50.0	72.8	69.8	140.0	63.8	60.8	730.0	49.5	46.5	700.0	49.5	46.5
125	63.8	59.8	150.0	62.2	58.2	240.0	58.1	54.2	830.0	47.4	43.4	800.0	47.4	43.4
125	55.6	52.6	150.0	54.1	51.0	240.0	50.0	47.0	830.0	39.2	36.2	800.0	39.2	36.2
225	50.5	42.6	250.0	49.6	41.7	340.0	46.9	39.0	930.0	38.2	30.3	900.0	38.2	30.3
225	43.9	40.0	250.0	43.0	39.0	340.0	40.3	36.4	930.0	31.6	27.6	900.0	31.6	27.6
		75.9			70.1			61.8			48.6			48.6
25	66.7	62.7	50.0	60.7	56.7	140.0	51.8	47.8	730.0	37.4	33.4	700.0	37.4	33.4
		62.7			56.7			47.8			33.5			33.5
25	74.0	71.0	50.0	68.0	65.0	25.0	74.0	71.0	375.0	50.5	47.5	580.0	50.5	47.5
125	60.0	57.0	150.0	58.5	55.4	125.0	60.0	57.0	475.0	48.4	45.4	680.0	48.4	45.4
125	60.0	57.0	150.0	58.5	55.4	125.0	60.0	57.0	475.0	48.4	45.4	680.0	48.4	45.4
125	63.8	59.8	150.0	62.2	58.2	125.0	63.8	59.8	475.0	52.2	48.2	680.0	52.2	48.2
225	50.5	47.5	250.0	49.6	46.6	225.0	50.5	47.5	575.0	42.4	39.4	780.0	42.4	39.4
225	50.5	42.6	250.0	49.6	41.7	225.0	50.5	42.6	575.0	42.4	34.4	780.0	42.4	34.4
225	43.9	40.0	250.0	43.0	39.0	225.0	43.9	40.0	575.0	35.8	31.8	780.0	35.8	31.8
		71.7			66.6			71.7			53.1			53.1
25	66.7	62.7	50.0	60.7	56.7	25.0	66.7	62.7	375.0	43.2	39.2	580.0	43.2	39.2
		62.7			56.7			62.7			39.2			39.2
270	53.4	50.3	50.0	68.0	65.0	25.0	74.0	71.0	25.0	74.0	71.0	780.0	74.0	71.0
370	50.6	47.6	150.0	58.5	55.4	125.0	60.0	57.0	125.0	60.0	57.0	880.0	60.0	57.0
370	50.6	47.6	150.0	58.5	55.4	125.0	60.0	57.0	125.0	60.0	57.0	880.0	60.0	57.0
370	54.4	50.4	150.0	62.2	58.2	125.0	63.8	59.8	125.0	63.8	59.8	880.0	63.8	59.8
540	42.9	39.9	250.0	49.6	46.6	225.0	50.5	47.5	225.0	50.5	47.5	980.0	50.5	47.5
540	42.9	35.0	250.0	49.6	41.7	225.0	50.5	42.6	225.0	50.5	42.6	980.0	50.5	42.6
540	36.3	32.4	250.0	43.0	39.0	225.0	43.9	40.0	225.0	43.9	40.0	980.0	43.9	40.0
		55.4			66.6			71.7			71.7			71.7
270	46.1	42.1	50.0	60.7	56.7	25.0	66.7	62.7	25.0	66.7	62.7	780.0	66.7	62.7
		42.1			56.7			62.7			62.7			62.7
430	49.3	46.3	600.0	46.4	43.4	25.0	74.0	71.0	775.0	44.2	41.2	230.0	44.2	41.2
530	47.5	44.5	700.0	45.1	42.1	125.0	60.0	57.0	875.0	43.1	40.1	330.0	43.1	40.1
530	47.5	44.5	700.0	45.1	42.1	125.0	60.0	57.0	875.0	43.1	40.1	330.0	43.1	40.1
530	51.3	47.3	700.0	48.8	44.9	125.0	63.8	59.8	875.0	46.9	42.9	330.0	46.9	42.9
650	41.3	38.3	800.0	39.5	36.5	225.0	50.5	47.5	975.0	37.8	34.8	430.0	37.8	34.8
650	41.3	33.4	800.0	39.5	31.6	225.0	50.5	42.6	975.0	37.8	29.8	430.0	37.8	29.8
650	34.7	30.7	800.0	32.9	28.9	225.0	43.9	40.0	975.0	31.2	27.2	430.0	31.2	27.2
		52.1			48.6			71.7			47.6			47.6
430	42.0	38.0	600.0	39.1	35.1	25.0	66.7	62.7	775.0	36.9	32.9	230.0	36.9	32.9
		38.0			35.2			62.7			32.9			32.9
930	42.6	39.6	970.0	42.2	39.2	25.0	74.0	71.0	775.0	44.2	41.2	25.0	44.2	41.2
1,030	41.7	38.7	1070.0	41.4	38.4	125.0	60.0	57.0	875.0	43.1	40.1	125.0	43.1	40.1
1,030	40.7	36.7	1070.0	40.4	36.4	125.0	59.0	55.1	875.0	42.1	38.2	125.0	42.1	38.2
1,030	37.3	34.3	1070.0	37.0	34.0	125.0	55.6	52.6	875.0	38.7	35.7	125.0	38.7	35.7
1,130	36.5	28.6	1170.0	36.2	28.3	225.0	50.5	42.6	975.0	37.8	29.8	225.0	37.8	29.8
1,130	33.6	29.6	1170.0	33.3	29.3	225.0	47.6	43.7	975.0	34.9	30.9	225.0	34.9	30.9
1,130	34.7	30.7	1170.0	34.4	30.4	225.0	48.7	44.7	975.0	36.0	32.0	225.0	36.0	32.0
		44.3			43.9			71.4			45.7			45.7
930	35.3	31.3	970.0	34.9	31.0	25.0	66.7	62.7	775.0	36.9	32.9	25.0	36.9	32.9
		31.4			31.0			62.7			32.9			32.9
		77.4			71.9			72.1			54.5			54.5
		72.3			69.8			74.9			71.7			71.7
		57.2			67.1			74.9			72.2			72.2
		52.9			50.8			74.8			49.9			49.9
		77.4			71.9			74.9			72.2			72.2

TABLE 1
SUMMARY OF ADTS
INGLEWOOD MORNINGSIDE TOWNHOMES PROJECT

Roadway	Segment	Existing	Project	Existing Plus Project	OY 2030	Cumulative	OY 2030 Cumulative	OY 2030 Cumulative Plus Project
104th Street	Yukon Avenue to Crenshaw Boulevard	8,090	1,240	9,330	8,820	3,330	12,150	13,390
Century Boulevard	Yukon Avenue to Crenshaw Boulevard	33,825	0	33,825	36,870	2,070	38,940	38,940
Crenshaw Boulevard	Century Boulevard to 104th Street	31,886	830	32,716	34,760	2,290	37,050	37,880
	104th Street to 108th Street	31,996	210	32,206	34,880	6,190	41,070	41,280
	108th Street to 109th Street	35,383	620	36,003	38,570	6,030	44,600	45,220
	109th Street to Thoreau Street	29,380	620	30,000	32,020	6,030	38,050	38,670
Yukon Avenue	Century Boulevard to 104th Street	12,978	1,030	14,008	14,150	910	15,060	16,090
	104th Street to 108th Street	8,506	0	8,506	9,270	910	10,180	10,180

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name:

Project Number:

Scenario: Existing

Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 50 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	104th St	Yukon Ave to Crenshaw Blvd	2	0	8,090	25	0	2.0%	1.0%	60.4	-	-	55	175
2	Century Blvd	Yukon Ave to Crenshaw Blvd	6	10	33,825	40	0	2.0%	1.0%	71.7	74	233	738	2,333
3	Crenshaw Blvd	Century Blvd to 104th St	4	10	31,886	40	0	2.0%	1.0%	70.5	56	177	559	1,768
4	Crenshaw Blvd	104th St to 108th St	4	10	31,996	40	0	2.0%	1.0%	70.5	56	177	561	1,774
5	Crenshaw Blvd	108th St to 109th St	4	10	35,383	40	0	2.0%	1.0%	70.9	62	196	620	1,962
6	Crenshaw Blvd	109th St to Thoreau St	4	10	29,380	40	0	2.0%	1.0%	70.1	52	163	515	1,629
7	Yukon Ave	Century Blvd to 104th St	4	10	12,978	30	0	2.0%	1.0%	64.4	-	-	139	439
8	Yukon Ave	104th St to 108th St	2	0	8,506	25	0	2.0%	1.0%	60.7	-	-	58	184

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name:

Project Number:

Scenario: Opening Year

Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 50 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	104th St	Yukon Ave to Crenshaw Blvd	2	0	12,150	25	0	2.0%	1.0%	62.2	-	-	83	263
2	Century Blvd	Yukon Ave to Crenshaw Blvd	6	10	38,940	40	0	2.0%	1.0%	72.3	85	269	849	2,685
3	Crenshaw Blvd	Century Blvd to 104th St	4	10	37,050	40	0	2.0%	1.0%	71.1	65	205	650	2,054
4	Crenshaw Blvd	104th St to 108th St	4	10	41,070	40	0	2.0%	1.0%	71.6	72	228	720	2,277
5	Crenshaw Blvd	108th St to 109th St	4	10	44,600	40	0	2.0%	1.0%	71.9	78	247	782	2,473
6	Crenshaw Blvd	109th St to Thoreau St	4	10	38,050	40	0	2.0%	1.0%	71.3	67	211	667	2,110
7	Yukon Ave	Century Blvd to 104th St	4	10	15,060	30	0	2.0%	1.0%	65.1	-	51	161	509
8	Yukon Ave	104th St to 108th St	2	0	10,180	25	0	2.0%	1.0%	61.4	-	-	70	220

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name:

Project Number:

Scenario: Opening Year Plus Project

Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 50 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	104th St	Yukon Ave to Crenshaw Blvd	2	0	13,390	25	0	2.0%	1.0%	62.6	-	-	92	290
2	Century Blvd	Yukon Ave to Crenshaw Blvd	6	10	38,940	40	0	2.0%	1.0%	72.3	85	269	849	2,685
3	Crenshaw Blvd	Century Blvd to 104th St	4	10	37,880	40	0	2.0%	1.0%	71.2	66	210	664	2,100
4	Crenshaw Blvd	104th St to 108th St	4	10	41,280	40	0	2.0%	1.0%	71.6	72	229	724	2,289
5	Crenshaw Blvd	108th St to 109th St	4	10	45,220	40	0	2.0%	1.0%	72.0	79	251	793	2,507
6	Crenshaw Blvd	109th St to Thoreau St	4	10	38,670	40	0	2.0%	1.0%	71.3	68	214	678	2,144
7	Yukon Ave	Century Blvd to 104th St	4	10	16,090	30	0	2.0%	1.0%	65.4	-	54	172	544
8	Yukon Ave	104th St to 108th St	2	0	10,180	25	0	2.0%	1.0%	61.4	-	-	70	220

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

Inglewood
Mechanical Equipment Noise

HVAC									
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA)	Ambient Level (dBA)	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Significant?	
1 - Morningside High School (west)	52.0	50	25	58.0	66.4	67.0	0.6	No	
2 - Single Family Residential (north)	52.0	50	50	52.0	62.5	62.9	0.4	No	
3 - Monroe Middle School (east)	52.0	50	25	58.0	64.2	65.1	0.9	No	
4 - Single Family Residential (south)	52.0	50	25	58.0	64.4	65.3	0.9	No	
5 - Future Child Development Center (east)	52.0	50	25	58.0	66.4	67.0	0.6	No	

* Source for reference level:Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010

Inglewood

Amplified Music Noise Calculation

Western Pool				
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA)
1 - Morningside High School (west)	80.0	3	185	44.2
2 - Single Family Residential (north)	80.0	3	520	35.2
3 - Monroe Middle School (east)	80.0	3	395	37.6
4 - Single Family Residential (south)	80.0	3	830	31.2
5 - Future Child Development Center (east)	80.0	3	830	31.2

Eastern Pool				
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA)
1 - Morningside High School (west)	80.0	3	830	31.2
2 - Single Family Residential (north)	80.0	3	435	36.8
3 - Monroe Middle School (east)	80.0	3	55	54.7
4 - Single Family Residential (south)	80.0	3	900	30.5
5 - Future Child Development Center (east)	80.0	3	260	41.2

Total Open Space					
Receptor	Combined Open Space Noise at Receptor (dBA)	Ambient Level (dBA)	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Significant?
1 - Morningside High School (west)	44.4	66.4	66.4	0.0	No
2 - Single Family Residential (north)	39.1	62.5	62.5	0.0	No
3 - Monroe Middle School (east)	54.8	64.2	64.7	0.5	No
4 - Single Family Residential (south)	33.8	64.4	64.4	0.0	No
5 - Future Development Center (east)	41.6	66.4	66.4	0.0	No

** Reference level assumes music playing on stereo. Source: Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010*

Inglewood
Trash/Recycling Truck

Trash									
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA)	Ambient Level (dBA)	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Significant?	
1 - Morningside High School (west)	85.0	3.3	100	55.4	66.4	66.7	0.3	No	
2 - Single Family Residential (north)	85.0	3.3	240	47.8	62.5	62.6	0.1	No	
3 - Monroe Middle School (east)	85.0	3.3	165	51.0	64.2	64.4	0.2	No	
4 - Single Family Residential (south)	85.0	3.3	50	61.4	64.4	66.2	1.8	No	
5 - Future Child Development Center (east)	85.0	3.3	50	61.4	66.4	67.6	1.2	No	

* Source for reference level:Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010

Inglewood
On-Site Traffic

Onsite Traffic									
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA)	Ambient Level (dBA)	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Significant?	
1 - Morningside High School (west)	54.8	50	100	48.8	66.4	66.5	0.1	No	
2 - Single Family Residential (north)	54.8	50	240	41.2	62.5	62.5	0.0	No	
3 - Monroe Middle School (east)	54.8	50	165	44.4	64.2	64.2	0.0	No	
4 - Single Family Residential (south)	54.8	50	50	54.8	64.4	64.9	0.5	No	
5 - Future Child Development Center	54.8	50	25	60.8	66.4	67.5	1.1	No	

* Peak Hour trips based on Traffic Study. Traffic noise at 50 feet calculated using FHWA TNM methodology

Inglewood
Composite Noise

Receptor	Mechanical Equipment (Leq)	Amplified Music (Leq)	Trash Truck (Leq)	On-Site Traffic	Combined Noise at Receptor (Leq)	Ambient Level (dBA)	Combined Noise at Receptor (dBA Leq)	Incremental Increase (dBA)	Significant?
1 - Morningside High School (west)	58.0	44.4	55.4	48.8	60.3	66.4	67.4	1.0	No
2 - Single Family Residential (north)	52.0	39.1	47.8	41.2	53.8	62.5	63.0	0.5	No
3 - Monroe Middle School (east)	58.0	54.8	51.0	44.4	60.4	64.2	65.7	1.5	No
4 - Single Family Residential (south)	58.0	33.8	61.4	54.8	63.6	64.4	67.1	2.7	No
5 - Future Child Development Center (east)	58.0	41.6	61.4	60.8	65.1	66.4	68.8	2.4	No

TRAFFIC NOISE ANALYSIS TOOL

Project Name: Inglewood Residential
Analysis Scenario: On-Site Traffic
Source of Traffic Volumes: Kimley-Horn

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
On-Site	Hard	50	25	25	25	326	0	0	54.8

Model Notes:
The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
Noise propagation greater than 50 feet is based on the following assumptions:
 For hard ground, the propagation rate is 3 dB per doubling the distance.
 For soft ground, the propagation rate is 4.5 dB per doubling the distance.
Vehicles are assumed to be on a long straight roadway with cruise speed.
Roadway grade is less than 1.5%.

Construction Truck Pass-By Noise

Source	Noise Level	Reference Dist. (feet)	Dist. to Receptor (feet)	Trucks	Distance Attenuation	Duration (minutes)
Truck passby (arrival, departure)	70	50	50	23	70.0	3.91
Total*						3.91

Results		
Truck Pass-by Noise Levels at 50 feet from Roadway Centerline		Exceeds Daytime Noise Standard?
Metric	Exterior	Exterior
L _{eq} (15-min)	64.2	No
L _{max}	70.0	No

* Duration assumes 0.17 minutes per truck during a pass-by event.

Source: University of Washington Department of Environmental and Occupational Health Sciences, Noise Navigator Sound Level Database, July 6, 2010.